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My Experiences In the Way of Root Treatment of Deciduous Teeth*

A Case of Artificial Replacement of Deciduous Teeth in a Child Four Years and Nine Months Old

By Alfred Raubitschek, Legal Mechanical Dentist, Vienna, Austria**

For many years I have endeavored to treat in a conservative way the deciduous teeth of my little patients up to the period of the eruption of the permanent teeth. There has been ample opportunity in our practice. As a consequence of the War and the ensuing social troubles, there were plenty of little patients whose parents had been under our care since their childhood, and who have had an opportunity to realize fully the success of conscientious treatment of their teeth. Not only influenced by theoretical considerations but mainly led by experience acquired in the conservative treatment of deciduous teeth, we adhered to the same principle followed in the treatment of permanent teeth, that is, to conserve everything as long as possible and to fill all cavities, even the smallest.

Up to present day we have been following this principle so popular in our practice. Although it is our first duty to conserve the permanent teeth, we must not undervalue the importance of the conservation of the deciduous teeth, and therefore we have acted according to the principle given above and treated both deciduous and permanent teeth.

And now to our particular case. Consider the case of a child who, born on July 18, 1920, got her first teeth only after the first year, a true "war-baby," so to speak. She was the child of my nearest kin, thus giving me the opportunity of keeping her teeth under close observation. During the second year of her life I observed that the outer appearance of the child's teeth was very poor and showed bad development. The crowns were relatively small and delicate and the enamel was drawn over them like a thin skin. Such conditions gave plenty of cause for anxiety. How justified this anxiety was was proved shortly

* From a lecture given at the Fachwissenschaftliche Arbeitsgenossenschaft (Fag) on the occasion of a special meeting on November 24, 1925, and published in *Die Zeitschrift für Zahntechnik und Zahnheilkunde*, Vienna, Austria, March, 1926.
The translation is by A. W. Morris, D.D.S., (Chicago College of Dental Surgery), Am Peter 4, Vienna, Austria.

** According to a decree of July 13, 1920, and a decree of April 15, 1921, legal mechanical dentists in Austria are entitled to undertake all work in the line of artificial teeth, filling, root treatment, extraction with local anesthetics and orthodontia.

afterward, for in quick succession one crown after another decayed and only the roots were left. Considering the youth of the patient and the extensive soft decay (from the color it looked like hard decay), it did not seem reasonable to undertake filling, especially as the child showed symptoms of other sicknesses combined with nervousness.

The patient was suffering from child asthma created by an affection of the thymus gland. I give below, in a footnote,* a notice from Professor Scipiades of the University of Fuenfkirchen, Hungary, because I presume that there may be some connection between this sickness and the rapid caries. However, all definite judgment concerning this must be left to physicians.

In order to show the motive which caused me to give artificial teeth to so young a child, I wish to explain that the child could not eat properly, she did not even know what masticating meant and could consequently not eat any bread-crusts or rolls until she had the artificial teeth. It will be easily understood that the general physical development of the patient suffered from this condition, especially owing to the fact that the child had been under medical care for a long time because of the trouble mentioned above.

The physicians gave the child a special diet (calcium, etc.), which was followed by the parents but without any apparent result.

The following table shows the normal periods of the beginning and the end of the resorption of the deciduous teeth:

	Incisors	Canines	1st Deciduous Molar	2d Deciduous Molar
Beginning:	4th year	5th year	5th year	5th year
End:	7th "	9th-10th "	10th "	10th-12th "

I mention this general rule in order to justify my choice for beginning the necessary root treatment during the first half of 1925, when the child was four years nine months old.

A repeated application of caustic (nitrite of silver) showed no results. The parts devoid of enamel blackened, but the decay continued rapidly. Due to the application of caustic, the crowns were less sensitive than might have been expected.

It is remarkable that with the exception of the four upper incisors, the pulps of which were gangrenous (later the lower right second molar followed their example), all the other pulps remained intact, although the crowns were entirely gone.

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* A new procedure for healing osteomalacia. Professor Scipiades was able to state on the basis of animal experiments that young dogs after the extirpation of the thymus gland got osteomalacia, which, according to clinical and microscopic examinations, is quite similar to osteomalacia in men. Professor Scipiades extirpated from a child deceased during birth the thymus gland, which was still warm, and sewed it into the stomach wall of a patient who had been suffering from osteomalacia for a year and a half. After ten days the patient was able to leave the bed. Such operations will not be performed frequently, however, thymus glands for transplantation being very rarely at one's disposal.

When treatment began, the caries of the worst kind was present. The four upper incisors showed fistulous openings resulting from former periodontitis. In order to soothe the little patient, who was somewhat nervous over the coming treatment, I deemed it best to start with the treatment of the roots of the upper four incisors, as this seemed the only possible course. The progress was satisfactory and without incident. The fistulas soon disappeared and on April 21, 1925, I was able to fix a well-fitting bridge over the roots of the four upper incisors. Here I wish to point out that the lower jaw was biting to the left of the median line owing to the missing antagonists. I hoped that after the completion of the entire work this condition would correct itself, and that the entire articulation would benefit from the treatment. I believe that had no replacement of the teeth been effected, thus stopping the sideward shifting of the lower jaw, a deformity of the whole facial and maxillary parts might have ensued which later might have badly influenced the positions of the permanent teeth.

In succession the remains of the other teeth were treated, the pulps being carefully opened with the dental engine and a small quantity of arsenic applied, this being left there only 24 hours at a time. In this way the preparation of the two upper canines and the four molars was quickly finished, the pulps removed and the roots filled without trouble, except in the case of the upper canines, which showed a slight pericementitis.

By exercising much patience all difficulties were finally overcome and the root treatment and all the artificial constructions were finished. It took some time, but due to the praiseworthy attitude of the patient, who called for treatment daily, the pivot teeth were cemented to place, while the upper right second molar received a gold crown. The upper left second molar, the walls of which were still intact, received an amalgam filling and the roots also were treated, while its antagonist, the lower left second molar, had root treatment but received only an amalgam filling. I should have preferred to put a gold crown on it, but the malocclusion did not allow me to do so. There remains to be reported that the lower right second molar also was treated and a gold crown placed. After the completion of these twelve root treatments and a setting of the crowns the treatment was completed for the time being.

By the beginning of June the work was ended and we decided to have x-ray pictures of the upper and lower jaws taken in September to see how the root fillings were situated, whether any apical inflammations had occurred, and how the tissues were reacting to the fillings; in short, to ascertain how the bridge and crowns were fitting, and whether any mistake had been made in the technical structure. It was desired to see also whether the formation of the permanent dentition was pro-

gressing and, further, to find out whether there was any indication for extracting the four upper incisors, which should appear about the age of seven. It was decided that an x-ray examination should be made every three months in order that the right time for extraction might not be missed.

Six months had passed meanwhile and we consulted Docent Dr. Fritz Pordes, X-Ray Specialist and Chief of the Central X-Ray Ambulatorium at the General Hospital in Vienna. The little five-year-old patient was introduced to him on September 5, 1925. The case interested him very much, as it is rather rare to find extensive reconstructions and numerous root treatments in so youthful a patient. In the x-ray pictures, which were very clear, could be seen distinctly the completely formed incisor crowns, also the calcification of the other permanent teeth and the roots of the deciduous teeth. Below is given the diagnosis after consultation with Docent Dr. Pordes:

Vienna, September 5, 1925.

Upper maxilla: The embryos of the permanent teeth—normal for her age. All upper roots treated and filled. Resorption of roots—normal. Alveolar process—normal.

Lower maxilla: Both first molars deeply carious, both second molars crowned. Embryos of the permanent teeth and roots of the deciduous ones—normal.

I wish to thank Dr. Pordes for making x-rays of the bones of the hand in order to ascertain whether the cause of the decay of all the tooth crowns of the patient was resulting from rickets. The result of the x-rays was negative and the extensive caries is believed to have been the result of bad nutrition of both mother and child during and after the War.

In summing up, I should advise my colleagues to act rigorously in similar cases of extensive treatments of deciduous teeth. If restorations must be made, as happened in this case, then the greatest care and patience on the part of the operator is required, if he expects to secure favorable results with the patients.

In addition to putting the child under x-ray control I brought her also under the observation of a prominent dentist, so that all scientific changes might be observed. On January 19, 1926, the lower right lateral, cuspid and first molar were crowned without removing the pulps. The lower left first molar was lost through splitting. The lower right central and lower left central, lateral and cuspid were filled with amalgam, their pulps being alive.

It is hard to give a conclusive judgment at the present time. The future will show what treatment is most advisable in the case of deciduous teeth.

The Treatment of Sensitive Teeth*

By Charles F. Bodecker, D.D.S., F.A.C.D., New York, N. Y.

A SUMMARY

Patients with extremely sensitive teeth are as a rule those most in need of dental services, since their teeth are usually soft and poorly calcified. Total lack of sensation to the ordinary operative procedures is very rare.

The reaction to pain is governed by the fear of the operation and the degree of sensitiveness of the teeth. The first factor is generally a product of past experiences, while the second factor is more or less dependent on the degree of calcification.

One type of dentist will try to foretell the painful stages of the operation, and the thoroughness of his work will depend on the balance between knowing what should be done and his consideration for the feelings of his patient. This operator will expend a great deal of nervous energy and will finish the day fagged out.

The dentist should try to impress upon the patient that he is competent to perform the operation, and that he is giving his undivided attention to it. One of the greatest means of instilling confidence is to be able to tell when the patient will experience pain, and to do this it is necessary to understand the microscopic structure of the dental tissues, and how sensation is transmitted.

Dentin has sensation, while it is doubtful if it exists in enamel, and the dentinal fibrils are the method of conduction. The sensitiveness of the dentin increases in direct proportion to its softness, and the most sensitive areas contain a large amount of non-calcified material. The four chief sensitive areas of a tooth are the pulp, the dentino-enamel junction, the granular layers of Tomes, and the interglobular spaces in the dentin.

The bur is the instrument that causes the most pain, and then in order come excavators, stones and chisels. The cavity should be kept as dry as possible. This diminishes the pain, makes the differentiation between carious and sound dentin more easy, and keeps the cavity in a more sterile condition. However, the use of stones requires a moist field, because in this way the stone does better work with less pain. Needless to say, the stones should be absolutely true.

In excavating a cavity it should be the aim of the operator to sense first of all the dentinal tubules connecting the area with the pulp. This will cause pain, and the patient should be warned. Only one class of

* Given before the Section of Pathodontia, First District Dental Society, New York, March 19, 1928.

cavities is painful during the preliminary stages, that is, the shallow labial or buccal type.

If the excavation of the deep part of the cavity causes pain, then an obtundent may be used. A procain pressure anesthesia tablet is placed in the cavity together with a little distilled water and covered with wax so that the cavity is slightly overfilled. Pressure is brought to bear on it with a burnisher, but it must be remembered that the penetration is only slight unless excessive pressure is used. The penetration is deeper in carious than in healthy dentin.

A Discussion of Gold As a Filling Material*

By William Finn, D.D.S., Pittsburgh, Pennsylvania

A SUMMARY

Cohesive gold may be used wherever there is sufficient access, such as the proximal cavities in anterior teeth and the mesial of bicuspids and molars. It must be possible to mallet the filling properly because, if just one place in the filling is poorly condensed, the whole filling will be poor.

A filling can be put in by hand pressure, but it is not an efficient way. So much force must be used that it is hard on both the patient and the operator. An automatic plugger is apt to cause soreness unless a small point is used with a light blow. The advantage of the hand mallet is that the peridental membrane is tensed before the blow is struck. A good filling must be above 14 specific gravity.

In a compound cavity the point angle is made with the smallest-sized inverted cone bur. In a proximal cavity in an anterior tooth it is made with a round bur. The line angle is formed with a chisel and runs into the point angle. It must be clearly borne in mind that the latter must be made first. The point angle must be placed in the dentin and not in the dento-enamel junction.

The lining of cavities with cement is not recommended, because when the gold is malleted the cement is liable to be cracked and pulverized. This will leave air spaces and prevent a perfect filling. The essayist has never had any trouble from the death of the pulp, even when there has been very little dentin between the pulp and the filling.

It is hard to say how much force should be used with a certain size of plugger. Points do not vary greatly in size, the range being only from one-half to one millimeter. The operator will learn to tell by the

* From a table clinic at the Better Dentistry Meeting, First District Dental Society, New York, December, 1927.

sound of the plugger whether or not the gold is being properly condensed. Too small a plugger may only chop the gold and not condense it.

The failure of a gold filling may be due to improper cavity preparation, such as the lack of a square seat and perpendicular walls. Or it may be that the filling is not sufficiently dense. Another reason is the lack of a proper contact point or marginal ridges.

The essayist has no use for the silicates, except perhaps as a window in an inlay. They are the poorest things we have to work with and the greatest curse in dentistry.

The reason that gold foil is not used so extensively at the present time is because the men have grown lazy. Furthermore, a man does not like to do what he cannot do well, and the majority of men have not been properly taught how to manipulate gold foil. This filling material cannot be used on every patient. Some cannot stand the rubber dam, while in others the peridental membrane is not sufficiently strong.

An inlay should be placed where foil cannot be used. A better contact is possible with an inlay than with foil, and Dr. Black has said that this is the most important thing in restorations. More teeth have been lost from improper contact than from recurrent decay.

[TRUE CULTURE]

The great men of culture are those who have had a passion for diffusing, for making prevail, for carrying from one end of society to the other, the best knowledge, the ideas of their time; who have labored to divest knowledge of all that was harsh, uncouth, difficult, abstract, professional, exclusive; to humanize it, to make it efficient outside of the clique of the cultivated and learned, yet still remaining the best knowledge and thought of the time, and a true source therefore of sweetness and light.

—MATHEW ARNOLD.

The Rise and Fall of Oral Hygiene In Bridgeport

By George Wood Clapp, D.D.S., New York, N. Y.

Eighth Article

How a School Dental Clinic Saved a Lot of Money

Now that we have traced the progress of the preventive dental clinic in the Bridgeport public schools until it is in successful operation, it may be worth while to leave it for a little and examine from a different point of view some of the difficulties encountered by Dr. Fones when he sought to secure municipal support for the clinic, because similar difficulties, seen or unseen, operate to hinder dentists elsewhere who wish to secure school dental clinics for their communities. These difficulties result largely from the failure of the dental profession to discharge some of its community responsibilities or to embrace some of its community opportunities, whichever way one looks at it.

Why Five Years of Educational Effort?

It will be recalled that Dr. Fones spent five years of continuous and intensive educational effort with the public and city authorities before he was able to procure his first appropriation of five thousand dollars. Why was this necessary? Evidently because there was no general public appreciation of the benefits of oral health and sound teeth even by those who should have been the leaders of the community, no perception of the danger from oral ill-health and unsound teeth, no understanding of how much the absence of many children from school because of toothache costs the school system, and no idea of how much better everybody would be and how much money could be saved if the mouths of all the children were kept clean and healthy from the beginning. The evidences that such a program would be economical in money as well as in cleanliness and health were coming clearly into view when the fell hand of politics swooped down upon the clinic.

Why Some Appeals for Dental Clinics Fail

Many dentists in many communities are seeking to secure public school dental clinics. Generally a small but devoted group among them addresses appeals to a board that is mentally unprepared and is spending the money of a community that is unconcerned. The dentists feel that the city fathers should see eye to eye with them and understand mind to mind, and that what they consider to be the self-evident merit of the proposal should carry it across. Because the merit of the proposal is not sufficiently evident to the board, the appeal is rarely suc-

cessful and the effort by the dentists usually dies out quietly. Such boards are confronted with many other worth-while schemes which they can understand better than they can the community application of good dental principles, and which are backed by large and aggressive and sometimes politically influential groups. Some one once said, "Nations do not rise for liberty; they are prodded up." In the same way one might say, "Propositions do not go across; they are *shoved* across." When a thousand mothers of children in the public schools in any community let the board of education know that they propose to have a dental clinic in their schools, there will be no difficulty in getting it. It is the duty or the opportunity of the dental profession to inspire the mothers to do that very thing. It can be done!

Drama and Tragedy for the Telling

No other profession has a better story to tell than has the dental profession. We overlook or neglect our opportunities for dramatic presentation. Perhaps we think that because oral disease and dental decay are insidious, gradual and cumulative, and because they seem to be part of the heritage of civilized man, there is no drama in them. There are drama and tragedy a plenty in their consequences, as we realized when Roosevelt's early death was ascribed to the results of periapical infection. In hundreds of thousands of less conspicuous lives tragedy from such causes follows close on the heels of youth, middle life and old age. Do you not think it was real drama when Dr. Fones presented those boys before the city fathers, as described on pages 94 and 95 of this magazine for this year? And do you think tragedy was lacking when the boy whose resistance had been so greatly weakened by periapical abscesses died within six months from heart disease with no other known cause?

Collective Action Necessary

The failures of dentists to obtain so beneficial and finally economical an institution as a dental clinic in the public schools may well be taken as evidence that we have made no strong impression on the public mind in behalf of dentistry except for those able to pay for it. Our strongest relations are as individuals serving individuals, and it seems difficult for us to outgrow this individual point of view.

We cannot hope to have collective force until we have collective action among ourselves. We probably all agree that there should be a dental clinic somewhere in the school system for the benefit of poor children, but when a school board wants a plan for such a clinic, the differences of opinion among dentists as to what should be done and how it should be done are often so great as to discourage the budding

interest of the school authorities. And sometimes the "irreconcilables" are politically influential.

Many among us try to educate mothers to take care of the child's teeth from infancy on, but others among us not only make no such efforts but discourage parents who try to follow the suggestions. It is by no means uncommon for a mother to be told that it is not important to keep the deciduous teeth clean or fill cavities in them, since they will be lost in a few years anyway. Every once in a while a mother is told not to bother about a cavity in a six-year molar "until it gets big enough to fill."

"Lip Service" for Preventive Dentistry

We are even less united on the desirability of a preventive dental clinic in the schools or on the details of its conduct. Most of us, except the specialists, give preventive dentistry only "lip service." If you do not think so, look at the mouths of the middle-aged dentists at the next dental convention you attend. How many of them are walking testimonials to the inestimable benefits of intelligent and habitual dental prophylaxis? How many of them could convert a wavering board of education by exhibiting the results of years of dental knowledge and experience in their own mouths? You might try looking dispassionately at your own teeth and gums to see how actual and practical is your own devotion to preventive dentistry for your own sake.

How many dentists carry on good dental hygiene campaigns in their own families? How often and how regularly do you clean the teeth of your own children and scrutinize them for the beginning of caries? Are not Mamie's teeth taken care of only when trouble threatens?

The teeth of people well along in middle life and supposedly far from the recuperative powers of youth can be made to glisten with health, and the gums can be firm in texture and of good color. That may require the doing of a lot of things we do not habitually practice, but it will require nothing that we ought not to practice as well as to preach.

A Basis of Appeal to Boards of Education

Nothing can be written here which will win favor for community oral hygiene with dentists who are indifferent or antagonistic, but perhaps something may be written which will aid dentists who desire preventive dental clinics to make an appeal to boards of education in a form likely to secure favorable consideration.

The fact may be accepted that boards of education never have enough money for all the worth-while schemes that are proposed for the schools, and that they are compelled to choose one or two things out of many. They are naturally most favorably inclined toward schemes

which visibly justify the necessary expense. They might be expected to be especially favorable toward any scheme which promised to save as much money as it cost; that is, they might be willing to spend at the bung-hole if they could see that they would get it back at the spigot, perhaps with interest.

There is one subject with which all boards of education are thoroughly familiar, and which is a grievous spot with all of them—the expense for re-education of retarded children. If the dentists of any community can agree in the presentation of any program that is likely to reduce the cost of re-education of backward children, they are likely to get a respectful hearing from the board of education, and, if they do not, they have an excellent campaign with which to go before the public.

Retardation in School Children

What is a retarded child? Educators seem to have agreed that the average child enters the first grade about the seventh year of his life and moves forward one full grade each year. On that basis a child eleven years old should be in the fifth grade. An important report, to which attention will be called shortly, regards any child of more than eleven years who is in the fifth grade as retarded. Other educators are not quite so strict and in New York it appears that ages from 10 to 12 years in this grade are regarded as normal.

Every school system finds some retardation inescapable. The expectation is not that it can be entirely removed; the problem is to lower it and the expense for it to the irreducible minimum.

Causes of Retardation in School

The report of the Superintendent of Schools of Bridgeport for 1922-1923 gives the following causes of retardation:

(1) Overcrowded classrooms.
(2) Irregular attendance.
(3) Uninteresting and inflexible courses of study.
(4) Inadequate or unskilled supervision.
(5) Immature, unskilled and self-satisfied teachers.
(6) Mental and physical defects.
(7) Part-time classes.

It is evident that no dental clinic could affect many of these causes, but it can be made to have a tremendous effect on the irregular attendance, upon the mental attitude and on some of the physical defects, and that will help to lower the cost of re-education.

The most frequent cause of irregular attendance, which is here given as the second cause of retardation, in the opinion of the Super-

intendent who wrote that report, is toothache, which, unless there is a dental clinic, is part of the daily experience of great numbers of children. It is a fertile cause of absence, and every day the child is away from school costs the taxpayers money.

The cost to the taxpayers is by no means limited to the absence of the small children from the lower grades; it includes absence, disaffection and open rebellion among children in the higher grammar grades. The writer was more or less closely associated with Dr. Ebersole during his work in Marion School, Cleveland. The children selected by the teachers to receive prophylactic and repair treatment were all of normal mentality, but were "thorns in the flesh" of the school system. Most of them were from one to four years behind their proper grades. They readily admitted afterward that when their mouths were in bad condition, they felt far from well and were rebellious against the school authority. In every case the attitude of rebellion disappeared when the physical condition improved following the dental service, and, while the money already spent on them for re-education was gone, no further expense for re-education was necessary in their cases. In fact, some of them made up work.

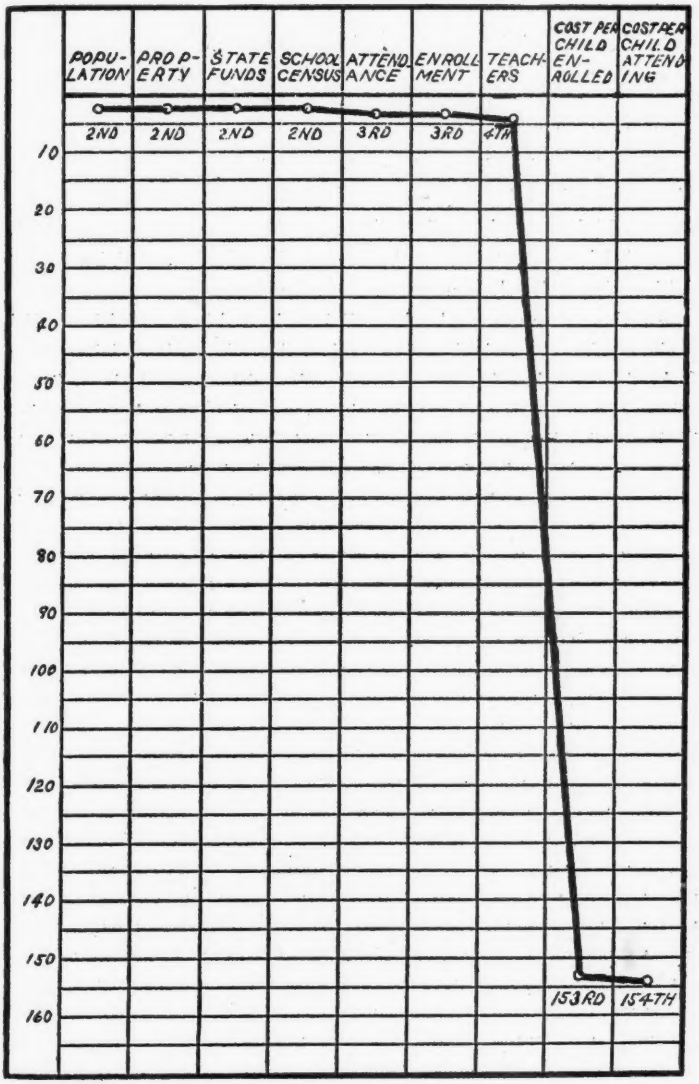
Some Conditions in the Bridgeport Schools in 1912

In 1912 the Bridgeport Board of Education employed James H. Van Sickle, then Superintendent of Schools in Springfield, Mass., and an outstanding educator of the day, to make a survey of the conditions in the Bridgeport schools. The report of this survey, published in 1913, shows that Mr. Van Sickle had associated with him in this work a number of eminent school authorities from New York, Cincinnati, Springfield and Baltimore. The science of school-surveying had not been developed as it has since that time, but the report which resulted from the efforts of these men is regarded as a fine piece of constructive criticism.

When one reads the Van Sickle report carefully and seeks to gather all of its meaning into a single impression, one cannot but feel that the conditions it portrays reveal a lack of vision, of devotion to ideals and of persuasive power in the Board of Education. Among the 168 cities and towns in Connecticut at that time Bridgeport stood second in population, in property, in the amount of State funds which it received for educational purposes, and in the number of school children. It stood 154th in the amount of money spent for the education of each child attending the public schools, as is shown by the accompanying graph.* This niggardliness is important, because the report states definitely that

* Reproduced from *Van Sickle Report*, page 29.

the quantity and quality of education any community gets for its children may be made to depend directly on how much it spends and how it spends it.

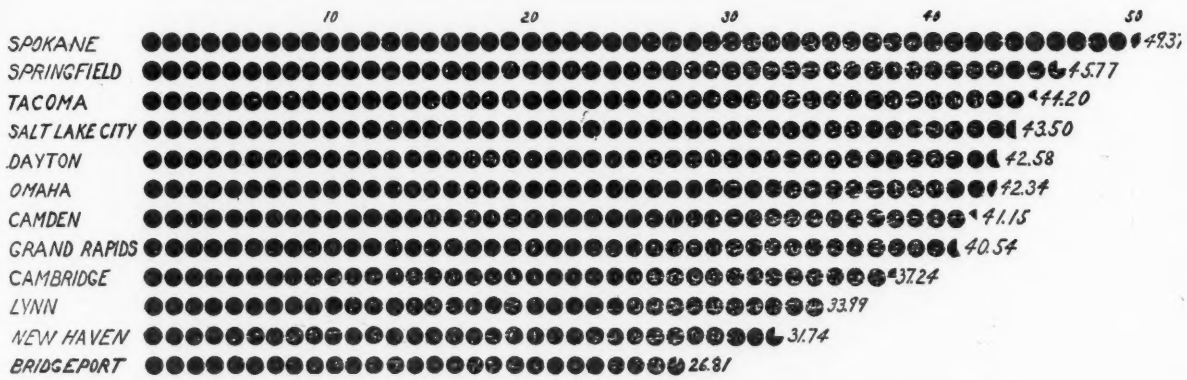


Rank of Bridgeport among the 168 towns and cities of Connecticut in each of nine educational comparisons.

There was no necessity for this low position in the educational scale because there was plenty of wealth in Bridgeport. There were public-spirited men influential in the community or men who were already influential and could have been made public spirited if those who were directing the Board of Education had set themselves seriously to make them so, because of the demonstrable benefit to them as employers if for no other reason. To be sure, the method of obtaining funds for the school system in Bridgeport was antiquated and insufficient, since they were derived solely from local taxation and tuition fees. But that could have been changed and was changed later. The change could have been made to appeal to the common sense of the community, and the politicians would have welcomed it, because the new program would have meant additional contracts, and who ever heard of a politician opposing anything that offered even a prospect of a contract?

In order to compare school conditions in Bridgeport with conditions elsewhere, the Van Sickle report selected twelve other cities, comparable in size, ranging from Tacoma, Wash., with a population of 83,000, to New Haven with 133,605. Bridgeport, with 102,000, came in the middle of the list. The expenditures by these cities for educational purposes, as shown by the report of the United States Bureau of Education, were compared in several ways with the expenditures by Bridgeport for the same purposes. The results show that Bridgeport spent less for the education of each school child than any of the other twelve cities, as is seen from the diagram on page 557*; that Bridgeport teachers received lower pay and taught larger classes than the teachers in any of the other cities, as per the table on page 558**; that the children of Bridgeport received cheaper education and less of it than the children in any of the other cities cited; that Bridgeport children received a smaller quantity and lower quality of every sort of educational opportunity than the children in these other cities; that the citizens of Bridgeport spent less per capita for their public schools than did the citizens of any of these other cities, as per the table and drawing on page 559***; that, while Bridgeport stood near the top of the list of Connecticut cities and towns in the resources from which funds for education would have to come, it stood near the bottom of the list in educational expenditures; and the 51% of all the children enrolled left school before reaching the sixth grade. This last item is economically more important than it sounds, because it probably condemns such children to subordinate positions and perhaps to unfavorable earnings throughout life.

* Reproduced from *Van Sickle Report*, page 16.
** " " " " " page 17.
*** " " " " " page 24.



Annual per capita cost for children in average attendance in the day schools of twelve cities.

The Van Sickle report showed that the retardation in the Bridgeport schools was so great that it must have been humiliating to the teaching staff. There were in the first grade 765 pupils of normal age, that is, seven years; 369 who were eight years old, 146 who were nine years old, 57 who were 10 years old, 28 who were 11 years old, 24 who were 12 years old, 18 who were 13 years old, eight who were 14 years old, and five who were 15 years old. Of these 207 had been in the grade two years, 44 had been in it three years, and 16 had been in it more than four years.

City	*Salary*	*Pupils*
Spokane	$1000	31
Tacoma	958	33
Dayton	801	31
Grand Rapids	800	30
Cambridge	792	33
Salt Lake City	777	30
Springfield	754	27
Omaha	744	30
Lynn	723	32
Camden	718	28
New Haven	690	34
Bridgeport	**654**	**38**

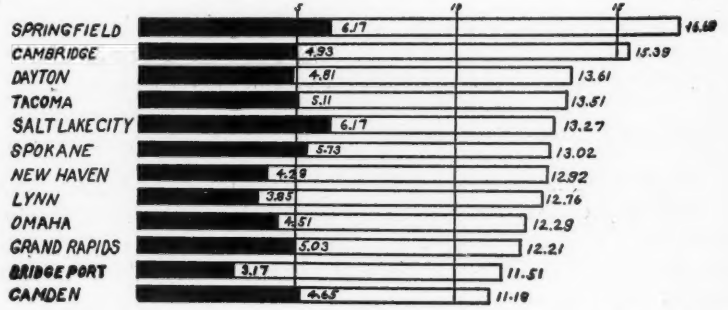
Average annual salary and average number of pupils per teacher in twelve cities.

In the fifth grade, where retardation was most marked, 61% of all the children or 861 children out of 1405 were above normal age, which in this report was 11 years. Three hundred sixty-six were 12 years old, 126 were 14 years old, six were 16 years and one was 17 years. In a study of retardation in the schools of 31 American cities made by Ayres*, Bridgeport ranked 25th.

During the first year of the dental clinic 6,768 children in the first and second grades were given prophylactic treatments. They presented, on the average, seven cavities per child. Nearly 700 of them had fistulas on the gums, showing the presence of putrescent conditions. Is it any wonder that children whose mouths were in that condition were irregular in attendance at school? How many of us would be regular at work or play if we had seven cavities in our teeth with perhaps a fistula or two?

* Ayres, *Laggards in Our Schools.*

Cities	*Per capita expenditure for all city purposes*	*Per capita expenditure for public schools*
Springfield	$16.69	$6.17
Cambridge	15.39	4.93
Dayton	13.61	4.81
Tacoma	13.51	5.11
Salt Lake City	13.27	6.17
Spokane	13.02	5.73
New Haven	12.92	4.29
Lynn	12.76	3.85
Omaha	12.29	4.51
Grand Rapids	12.21	5.03
Bridgeport	**11.51**	**3.17**
Camden	11.18	4.65



Expenditures per capita of population for all city purposes and for school support. Data from statistics of cities, United States Census, 1908.

What Happened to Retardation and the Expenditure for It

In September, 1912, 40% of the children in the first eight grades were retarded, according to the standard which has been given. In November, 1918, after the dental clinic had been in operation four years, only 20% of the children in the same grades were retarded. This is a reduction of 50%. In the fourth and fifth grades, where the effect of the four years of dental clinic showed most plainly, retardation dropped from an average in 1912 of 60% to 46% in 1918.

In 1912 there were 15,733 pupils in the public schools, and the school budget was $363,732. Of this amount 42% or $152,767 was spent for the re-education of retarded pupils.

In 1918 there were 22,881 pupils in the schools, and the budget was $835,513, of which only 17% or $142,037 was spent for re-educa-

tion. If there had been the same number of children and the same amount of budget as in 1912, this reduction in the percentage expended for re-education would have saved the city more than $90,000. If the percentage spent for re-education in 1918 had been as great as in 1912, the sum required for that purpose alone would have been more than $350,000. The reduction in the percentage of retarded children permitted the city to conserve more than $200,000.

Between 1912 and 1918 there were decided improvements in the methods of teaching arithmetic, geography, language and history, and also improvements in the study courses for teachers. But the classes for each teacher were larger in 1918 than in 1912.

If we accept the opinion of the Bridgeport Superintendent of Schools, as expressed in his report for 1922-1923, that any plan which would reduce retardation by 1% was worth $10,000 a year to the city, and if we ascribe half of the reduction in retardation to causes other than the dental clinic, is it not reasonable to attribute the other half of the reduction to the dental educational and repair work in the schools and say that the dental clinic, which then operated at a cost of $42,000 per year, saved the city at least twice as much money as it cost?

What the School Dental and Health Clinic Saves Atlanta

As to the dollars and cents economy of a dental and health clinic, no testimony could be more striking or important than the following letter from Professor Sutton, Superintendent of Schools of Atlanta, Ga., known nationwide for his initiation and advocacy of this form of service.

Atlanta, Ga., June 22, 1928.

My dear Dr. Clapp:

The records of the Board of Education for the past five years for the six elementary grades show an average attendance as follows:

For the session of	1922-23	84%
	1923-24	89%
	1924-25	91%
	1925-26	93%
	1926-27	94.6%

You will note that our intensive program for dental and health education began about six years ago. I estimate that more than 5,000 additional children attended school in Atlanta every day, due to our intensive health program and especially to our program of dental care.

Now as to the subject of retardation. Seven years ago our average percentage of failures in the same six elementary grades was 12.9%. Today our average percentage of failures in the same grades will not exceed 5.5%. In other words, we have reduced our retardation certainly by one-half. This is very remarkable in view of the fact that during the last few years we have been forced, on account of lack of money, to enlarge the number of children in each class. Our record does

not appear quite so good for the junior and senior high schools. It will be interesting to know that the program was harder to keep going in the junior and senior high schools than in the elementary schools. However, during the past two years our oral hygiene program has been 100% in the high schools, and we believe that the retardation will be reduced within the next two or three years.

The cost of educating a child in the Atlanta Public Schools for the elementary grades is something over $60.00 and for the high schools about $104.00 per year. I believe, conservatively speaking, that our health program in Atlanta is saving in the neighborhood of $200,000 to $250,000 per year to the school system, and the amount of savings to the individual child in better work, increased efficiency and more rapid transition from grade to grade can never be estimated.

(*Signed*) WILLIS A. SUTTON,
Superintendent of Schools.

Is not the evidence that such reduction in retardation and expense occurred in a city of the size of Bridgeport in the face of many unfavorable conditions a logical and effective basis on which to appeal to any board of education for the establishment of a preventive and corrective dental clinic in the public schools?

(The Ninth Article will tell how a powerful force in the educational system of Bridgeport arranged itself alongside the work which Dr. Fones was doing in the schools and helped to establish sound physiques in thousands of children.)

Some Conclusions Upon the Numbers of Apical Foramina In Teeth

Compiled by A. M. Johnson, A.B., D.M.D., New York, N. Y.

This information is condensed from the books entitled **The Anatomy of the Root-Canals of the Teeth of the Permanent Dentition,** by Walter Hess, M.D., D.D.S., Professor of Operative Dentistry, University of Zurich, Switzerland, and **The Anatomy of the Root-Canals of the Teeth of the First Deciduous Dentition and of the First Permanent Molars,** by Dr. Med. Dent. Ernst Zürcher, School Dentist, Zurich, Switzerland, both published in one volume by John Bale, Sons & Danielsson, Ltd., London. 199 pp., with 63 plates (1,380 illustrations).

It is given in this form for fear that this volume will find its way into the libraries of far too few dentists, and because every dentist who is ever confronted with the necessity of filling any root canals should possess the information which it presents.

This is a very interesting book showing the form and development of the root canals in the various teeth at different periods of development. Models were made by the following method:

"Extracted teeth are drilled into and the pulp cavity is exposed without, however, penetrating into the root canals. Then the teeth are placed in a vessel filled with drinking water and kept from three to four months with the thermostat at a temperature of 37° C. This result might be obtained in half the time if hydrogen peroxide, free from acid, were used. The teeth are washed for twenty-four hours in running water, then left for twenty-four hours in absolute alcohol, and are then dried for twenty-four hours at the temperature of a living room.

"Then the roots of the teeth are wrapped in blotting paper to the enamel margin, and are embedded in plaster of Paris in an ordinary well-fitting vulcanizing flask, so that the plaster of Paris covers the tooth up to the pulp cavity. When the plaster of Paris has hardened, the pulp cavity of each tooth is packed with rubber, the surface rubbed with talc, and the counter-mould made.

"After the hardening of the plaster, the flask is opened and the root canals and the pulp chambers of the teeth are packed as firmly as possible with ordinary red vulcanite. To avoid adherence to the counter-mould, a piece of linen is placed between the two halves. The flask is now put into warm water and boiled for about twenty minutes, and afterwards closed by gradually increasing pressure. When the rubber has penetrated into the root canals from the pulp chamber, another piece of rubber is put over each pulp cavity, and the flask is then boiled for twenty minutes and again closed by gradual pressure. The flask is

then kept for several hours under the press, gradually cooled, and then during one hour vulcanized under a pressure of seven atmospheres.

"After the teeth have been rinsed in water, they are dissolved in a solution of 50% pure HCL, which can be done in the thermostat at a temperature of 25° to 31° C. in a few hours. The corrosion preparation is now rinsed carefully in running water, freed from the excess of vulcanite, and planted in a plaster of Paris block to form permanent preparations."

This method is given in detail because upon its accuracy depends the value of the conclusions.

The upper centrals and laterals possess one main canal conforming to the shape of the root. The size of the canal diminishes with increasing age. About 25% of the teeth examined had apical ramifications; 20% had openings from the canal to the peridental membrane at various levels. These are termed marrow-canals.

The upper canines correspond closely to the incisors except that the canals are larger and flattened mesio-distally.

In the lower incisors examined 37.6% showed a bifurcation of the root canal; 30% had apical ramifications, while only 10% had marrow-canals.

43% of the lower canines showed bifurcations, 39% apical ramifications, 12% marrow-canals.

In the lower premolars only about 5% showed a division in the canal, 47% had apical ramifications, 18% had marrow-canals.

260 upper first premolars were examined and 79% showed two root canals, while 1% had three. Nearly 50% had apical ramifications, but only 18% had marrow-canals.

Of the upper second premolars 56% had one canal, 42% two canals and 2% three canals. The other divisions were practically the same as in the first premolars. The upper first and second molars usually have three canals, but sometimes four are found. This is generally brought about by a division of the mesio-buccal canal. This canal also has the largest number of apical ramifications.

The lower first and second molars also show highly complicated forms. The distal root is usually smaller and grooved longitudinally in a mesio-distal direction. In the lower second molars there are sometimes three anterior roots. There are numerous apical ramifications and marrow-canals.

The upper third molars may have any number of root canals up to four; the same may be said of the lower wisdom teeth.

Conclusions

"(1) The root canals usually conform to the outer forms of the

root, but may be more or less widely differentiated, according to the type of tooth, by the presence of—

a. Dentin partitions in the interior of the root canals.
b. Delicate ramifications in the apical region of the root.
c. Marrow-canals, which, at different levels of the root, pass from the root canal to the peridental membrane.

"(2) These structures of differentiation normally occur in teeth which externally are prefectly normal, and are to be considered as purely anatomical, that is, to be developed physiologically.

"(3) The form and number of root canals are largely determined by the dentin partitions formed by a physiological growth of dentin within them. These occur chiefly in types of teeth anatomically so predisposed by having lateral, external grooves. These partitions may cause an extensive differentiation in root canals which were originally of simple form. These differentiations are characterized by the appearance of spaces in the tissue, by transverse connecting systems, and especially by the division of the root canal into two separate canals. This division of the root canal occurs mainly in the lower incisors and canines, in the mesio-buccal roots of the upper first and second molars, in the mesial roots of the lower first and second molars, and in the upper premolars.

"(4) The finer apical ramifications occur regularly in all types of human teeth but in different numbers in each type. They form a net-like structure at the apices consisting of numerous fine canaliculi, and they occur especially in the upper third molars, also in the mesio-buccal roots of the first and second upper molars, in the incisal roots of the first and second lower molars, and in the upper and lower premolars.

"(5) The marrow-canals occur likewise in all types of human teeth. They occur either as connecting canals between separate canals, or one or more penetrate the root dentin from the main canal to the peridental membrane.

"(6) Age has an influence upon the form and number of the root canals of the different types of human teeth, in that at the early age period, before the closing of the apical foramen, structures of differentiation are generally absent; only after the foramen has closed do the divisions of the canals form. With increasing age, by a more or less regular dentin addition a contraction of the root canals occurs which may end in their complete obliteration."

Reminiscences—Mostly Anesthetic

By William Harper DeFord, D.D.S., M.D., Des Moines, Iowa

EIGHTH ARTICLE

In full expectation of relinquishing the practice of dentistry after my Colorado vacation terminated, my anesthetic activities for the next few months were limited and I recall accepting but two invitations to attend dental meetings while in Colorado. One was the meeting of the Colorado State Dental Society, which convened that year at Boulder, and the other a very large meeting held at the Jamestown Exposition, Jamestown, Virginia.

The Jamestown meeting was very interesting and very instructive, at least to me. I was invited to give a clinic and instruction in somnoform administration. This was a five-day meeting. I averaged eight or ten practical cases each day, and my patients were all sailors—not only sailors, but drunken sailors. The patients for the Jamestown Clinic were furnished by the Navy Yard at Norfolk, and you know the first thing a sailor does when he has a day off duty. These patients came through Norfolk at a time when there was a saloon on every corner and others between corners, and by the time they reached my clinic they were all "lit up." A man who has been drinking is not an ideal anesthetic subject and is apt to become unruly during the early stages of administration. It would have been a sufficient test to give an anesthetic to those big, husky fellows while sober, but to have them in the state of wanting to do something funny or to fight was not particularly enjoyable. In giving instruction relative to anesthetic administration for many years I had insisted, if it was discovered that the patient had been drinking, on postponing the appointment. But there was no opportunity to back out here. There was nothing to do but to proceed and make the best of it. Much to my surprise and delight, nothing unusual happened. While in Colorado I had been corresponding with parties in Chicago relative to a business connection and thought it worth while to have a personal interview. The shortest route to Chicago was through Des Moines, so I arranged to make a brief stop in that city. I reached Des Moines on Saturday night and on Monday morning happened to meet Dr. Jesse West on the street.

He said: "When did you get back? President Bell of Drake University wants to see you. He was in my office Saturday inquiring as to where you could be found. Drake University has absorbed the Keokuk Medical and Dental Colleges, and President Bell thinks you would be the right man for the Dean of the Dental School."

I went with Dr. West to his office. He telephoned President Bell and an interview was arranged for four o'clock at the Savery Hotel and

another for the next morning at the University. Thus I became Dean of Drake University College of Dentistry, with the understanding that all my time belonged to the University. I was not to have a dental office, and I was not to engage in dental practice. This arrangement pleased me very much, and I was glad to have an opportunity to do some anesthetic experimenting again.

I was perfectly satisfied with the appliance which I had been using for extracting teeth and minor surgical operations with somnoform, but I believed that something better could be made for operations on the teeth other than extractions. I had an idea that a "fool-proof" appliance could be constructed and I worked along this line for about two years, experimenting on patients and students, until I was fairly well satisfied. This appliance was a nasal inhaler useful for nitrous oxid, nitrous oxid and oxygen, ether, chloroform, ethyl chlorid, somnoform, or any other anesthetic agent of a rapidly evaporating nature that might be discovered.

A big dental manufacturers' exhibit had been planned for a certain date in New York. Dr. Jessie R. DeFord (my wife) and I had been invited to show this inhaler at that meeting. A few days before the meeting I thought of something that might further improve the inhaler, so I sent it back to the instrument-maker in New York for this added improvement. We arrived in New York about noon and were informed that arrangements had been made for us to give a clinic at the New York College of Dentistry that afternoon. There had been no opportunity to try out the inhaler after the last suggestion for alteration had been made.

We arrived at the New York Dental College at the time specified and found that the large lecture room had been converted into an operating room with chairs, sterilizer and instruments on the platform, the seats were filled with students, and several members of the faculty were in attendance. We had never had such a reception or been so honored before and naturally felt quite nervous.

While surgical anesthesia for extracting teeth and for other minor surgical operations could be induced before this last adjustment had been made, this inhaler was primarily intended for analgesia and light anesthesia, to be employed for dental operations other than extracting, and the entire provision here arranged was for an extracting clinic. I could not help but recall that the first public demonstration of nitrous oxid by Horace Wells was a complete failure, and we are told that he committed suicide.

The first patient was an elderly Irish woman with twelve teeth to be removed. After about six times as much somnoform as usual for such a case had been administered, the patient showed no sign of being anesthetized. I frankly admit that I did not understand it and was

puzzled as to what to do, but I allowed her to inhale a little longer, after which she still showed no real sign of anesthesia. Not knowing what else to do, I started operating, and when the first tooth was removed, she said, in a loud voice that could be heard all over the room, "It did not hurt a bit. Take another one!" She continued to make witty remarks every time a tooth was removed, and after the last extraction she was so thankful that she tried to kiss me.

In a baseball game, when the club in the field gets in a tight place, you have seen the catcher walk out to the pitcher and indulge in a whispered conversation. This was what Dr. Jessie R. and I did. We asked each other what the matter was. Was it the appliance, was the patient a freak, or was it just New York?

After this patient left the chair and we were arranging for the next patient, Dr. William Carr, Dean of the New York College of Dentistry and an oral surgeon, took the platform and addressed the students, saying in effect: "You have seen an amazing demonstration here this afternoon. For years surgeons have contended that to perform any kind of an operation in any stage or degree other than that of deep surgical anesthesia was dangerous to life, and we all know that this patient was not surgically anesthetized, that she did not feel pain." He followed by saying some very complimentary things about both of us.

These remarks made us a little more comfortable, but would the next patient spoil it all? He did not. When the time allowed for this clinic had expired, we took a deep breath and longed to get back to the hotel, where we might be alone and discuss the happenings of the clinic and try to account for what had happened. But Dr. Herbert Wheeler, who was waiting to take the platform for his regular lecture, announced that he would donate his hour for the prolongation of our demonstration. Then for another hour we rapidly took one patient after another, and we did not succeed in getting surgical anesthesia in a single case. Every case was done under analgesia, and although these results were not what we expected and intended they should be, they proved that much more could be done under analgesia than the writer had ever claimed. Indeed, I had been teaching for twenty years that a tooth should never be extracted when only analgesia had been induced, but that in all cases it was necessary to carry the patient into surgical anesthesia, as a shock is what produces death when a patient dies from an anesthetic administration, and I had always been afraid that an operation as severe as an extraction, when the patient was in the analgesic stage, might produce surgical shock. Although we got through on that occasion, I still feel that it is a risk that should not be assumed, but rather that surgical anesthesia should be induced in extraction cases.

The next morning the big dental manufacturers' exhibit started in the Armory, and for six days and nights, from 9:00 A. M. to noon,

1:00 to 5:00 and 7:00 to 10:00 P. M., each of us had a dental chair and administered somnoform to dentists so that they might know what was meant by the analgesic stage. Seven thousand dentists registered as being present at that meeting, and we were busy every minute during the meeting with both chairs.

But what happened, you ask, that anesthesia could not be induced with the appliance used at the clinic given at the New York Dental College? The last change that I suggested had produced such a fine adjustment that at no time could a patient get enough anesthetic to become anesthetized—that was all!

15 Rawson Block.

(To be continued)

Death of Dr. Rhein

As we go to press we hear of the death of Dr. Meyer L. Rhein. He was sixty-eight years old and has been prominent in the dental profession for many years. He was best known for his root-canal technic and the use of ionization.

Dr. Rhein was a member of the First District Dental Society of New York, The American Dental Association and many others. His loss will be greatly felt.

Porcelain Manipulation

A Practical Technic for the General Practitioner

By F. R. Felcher, D.D.S., Chicago, Ill.

XVII

Staining

Esthetics plays a large part in the lives of people, as will be found in almost every walk of life. The bill for cosmetics in a year mounts up to hundreds of millions of dollars and to the dentist this opens a field for thought. We are thus led to believe that our patients do not desire artificial-appearing restorations, and that they are happier when restorations are made which blend in with their general features or characteristic appearance. The manufacturers of teeth are limited in production to certain types and variations of these types. The individual touch must be placed on these teeth by the dentist or the technician, and a knowledge of contour-changing and staining opens an unlimited field.

Occasionally a tooth presents a check in the enamel or there may be present a cast of a certain color, like a pink or blue or a gray transparency. Sometimes teeth are worn to the dentin, and the dentin may be stained on the incisal or the occlusal surfaces of teeth. Tobacco stains are frequently present, and these conditions can be easily reproduced.

In denture restorations the use of a low-fusing mineral stain, recently placed on the market, and which may safely be used on teeth that have gold-clad pins, fills a much wanted need. The higher-fusing mineral stains that are used on teeth to be subjected to soldering and the high-fusing porcelain stains (2550-degree) for jacket crowns, which are inserted while the crown is under construction, are to be considered.

We will take up two methods of staining, surface-staining, wherein the stain is applied to the surface, and body-staining, where the stain is made to appear in the teeth.

Stains should be able to withstand mouth conditions, and for that reason china stains are not so permanent as regular porcelain stains. The materials on the market at the present time seem to fill the requirements nicely and may be used safely.

The low-fusing (1600-degree) stain is the only stain that can be used on gold-clad pin teeth. These teeth should under no condition be allowed to fire at more than 1600°, as a higher temperature will corrode or burn out the pins. For that reason it is advisable that the furnace and pyrometer be checked with the gold pellet to insure accurate reading of the temperature.

Low-fusing stains should not be used on teeth that are to be sub-

jected to a blowpipe. Using these stains on teeth for that purpose will cause the stain to soften and adhere to the investment, producing a result which will not give satisfaction. For soldering purposes the high-fusing mineral stain (1900-degree) should be used.

The following procedure is used where the entire surface of a gold-clad pin tooth is to be changed. For instance, a tooth presents an almost entire surface of brownish yellow, except at the tip or incisal fourth. Mix the proper amount of brown and yellow on the slab. Use the palette knife to grind out the coarse particles, adding the water until a watery mix is present. Take a small brush, one that has been washed out and is absolutely clean, and with a light stroke wash the stain over the surface of the tooth, which has previously been cleaned. Now place the tooth in front of the furnace or pass it through a Bunsen flame to dry the surface. With another brush, which is dry, brush away the stain that is not needed. For example, where it is desired to keep the incisal portion in its original state, brush away the portion which will expose the incisal, and fire in the following manner.

Place the tooth on the slide and silex, and allow it to remain before the muffle door until thoroughly heated and until it is certain that by placing it in the furnace the tooth will not check. Close the door, but let the furnace read about 1300° when the door is shut. Now raise the temperature until 1600° is reached and hold at that temperature for about two minutes. If it is desired that the tooth be removed from the furnace immediately, place it under a glass and allow it to cool.

Where it is desired to reproduce an enamel check or simulate a washed-out silicate filling, take a very fine brush, one that is composed of a few fine hairs, and apply the stain of the desired color by painting a line straight down the enamel portion of the tooth, if reproducing the enamel check, or by drawing the washed-out silicate restoration. Usually at the first application of the stain the lines will be too heavy, but they can be thinned by dipping the brush in water and shaking out the excess, and by carefully washing along the lines thin lines will be produced. Fire in the usual manner.

As most of the surface stains appear dull and fired, by covering the stain with glaze, a 1600-degree glaze for soldered-in gold pins or a 1945-degree glaze for other teeth, fine results will be obtained.

If it is desired that the staining of teeth show conditions of checks, etc., placed not on the surface of the tooth but elevated above the tooth, the porcelain can be cut into or etched with a fine stone or a diamond graver and the stain placed and fired and then covered with glaze.

The more water that is applied to the stains, the lighter will be the color. While some operators make use of glycerine or oil, water has worked well in the author's experience.

Surface-staining for the high-fusing 1900-degree mineral stain is

manipulated in the same manner as the 1600-degree stain, except that it is placed in the furnace and, when the furnace registers 1600° F., the current is advanced until 1900° is reached, where the temperature is held for about two minutes, and then the work is removed.

White areas are best reproduced by cutting the design into the tooth with either a fine stone or a diamond graver, and the stain is placed into the tooth somewhat thickly and fired. It can be later covered with a glaze.

In body-staining, reference is made to staining which gives to the tooth an appearance resembling a discoloration that seems to have penetrated into its structure. It gives of course the most natural effect and should be done whenever possible. While this method of staining is somewhat difficult when applied to soldered-in pin teeth, it can be done with the use of low-fusing (1700-degree) porcelain, but the heat of course should not be carried higher than 1600°, and the firing carried on at that temperature for the proper amount of time.

With artificial teeth of any other type the 1900-degree stain offers a wide field for body-staining, but care must be used in the operation of covering and firing if a medium-fusing porcelain (2300-degree) is used. In the experience of the author these stains can be carried to a temperature ranging from 2100° to 2150°. Possibly 2100° will be sufficient and the time at which that temperature must be held can be easily determined.

The use of the medium-low porcelain offers the best opportunity for body-staining, as its fusing temperature is 1900° in about seven minutes, which is agreed to be the fusing point of the high-fusing mineral stain.

Proceed as follows:

The tooth is selected and the face is ground to allow for the application of porcelain which in the finished product will not interfere with the alignment. Wash thoroughly after it has been ground and disked, and dry. Apply the stain to the tooth, reproducing the effects desired, and fire at the temperature of the stain.

When the tooth is cool, select a light shade, one that will be somewhat neutral in color when fired, and build over the contour of the tooth.* The case may now be carried to the biscuit stage, if a biscuit is desired, and this technic should be followed out:

It must be remembered that porcelains have certain points where the maximum of shrinkage takes place, as discussed in the article on *Firing*.** In allowing the heat to remain at a lower temperature than the maximum shrinkage point it is advisable to hold the heat at the

* See article on *Contour Changing*, THE DENTAL DIGEST, July, 1928.
** THE DENTAL DIGEST, June, 1928.

lower degree for a longer time. For example, medium-fusing porcelain when fired at a lower temperature than 2200° must be kept at the lower temperature for a longer period of time to get the biscuit bake. Should it be found that the biscuit bake is not sufficient at 2100°, for instance, in three minutes, replace and hold for another few minutes, then high-fuse accordingly. The same principle should be used for the low-fusing porcelain. In the medium-low-fusing porcelain such precautions need not be followed, since the biscuit bake is reached at 1900° and the high fuse takes place at that temperature in a certain number of minutes.

When the tooth is ready, after grinding either where excess porcelain has been applied or where porcelain has been added, the final firing may take place. Jacket crowns that have already had the final firing may be stained in the same manner as artificial teeth. However, beautiful results may be obtained by applying the high-fusing (2550-degree) stains in the proper places while the crown is being constructed.

The procedure is simple enough. All that is required is that the operator cut away from the build-up the shape or outline of the area to be stained and place the stain of the proper color therein.

The stains are now covered with the porcelain and fired as usual in jacket-crown construction.

7616 Phillips Avenue.

[THE CRITERION OF GOOD WORK]

The surest test of any dental restoration is the condition of the periodontium. Our restorations should be made to provide the longest possible term of health. This invariably calls for a consideration of the entire dental mechanism in order to insure a harmonious relation of all its parts.

—DAVIS.

Oral Surgery In Practice

By James L. Zemsky, D.D.S., New York, N. Y.

Attending Surgeon, Department of Oral Surgery; Chief of Clinic and Director, Surgical Periodontia Department, Midtown Hospital, New York

(*Continued from July*)

NECROSIS

¶250. Necrosis of the jaw bones follows not only infections originating in the teeth and their investing structures but also various other conditions, among which arsenical, mercurial and phosphorous poisoning should be borne in mind. Traumatic injuries, syphilis and tuberculosis, as well as acute eruptive or exanthematous fevers such as scarlet fever, measles, variola, etc., also must be remembered in this connection.

¶251. Dead bone, which results from either osteomyelitis or any condition leading to necrosis, may at times be recognized by "feeling" it with a probe. It is not always necessary to remove such necrosed bone, for nature as a rule throws it off in the form of a sequestrum. (See Figs. 270-271.)

Fig. 270

Photograph of a sequestrum removed in a case of necrosis following osteomyelitis of the mandible. Note the erosions or caries of the bone. These rough surfaces may be easily felt by probing. The lack of sensation of pain indicates that the bone is dead. Any "give" or movement of necrotic bone when probed indicates a sequestrum formation. (See ¶251-252.)

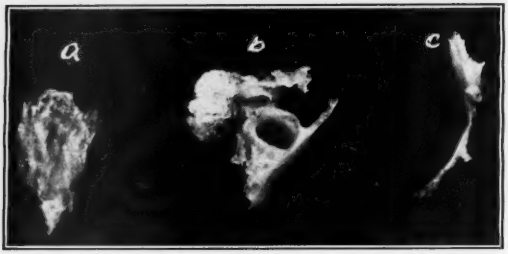


Fig. 271

Photograph of sequestra formed in cases of necrosis of the maxilla. Note the sequestrum presented in *b*, which shows a portion of the maxilla with an entire tooth socket. (See ¶251, 252, 256.)

¶252. Successful treatment of necrosis requires conservative surgery. This consists in making a deep incision to establish adequate drainage and maintaining such drainage until sequestra are formed. (See Figs. 270-277; also, Fig. 244.)

Fig. 272

NECROSIS OF THE MANDIBLE

Photograph of a patient, 46 years of age, with a hard swelling of the mandible on the right side which developed after an attempt to remove the right second mandibular premolar and resulted in necrosis. (See Figs. 273-277; also, ¶252-253.)

Fig. 273

Extra-oral roentgenogram of the right mandible of the patient in Figs. 272-277. It reveals extensive destruction of the body of the mandible, due to an osteomyelitis which led to necrosis with the formation of a sequestrum. A better view is seen in Fig. 274. (See Figs. 272-277; also, ¶252-253.)

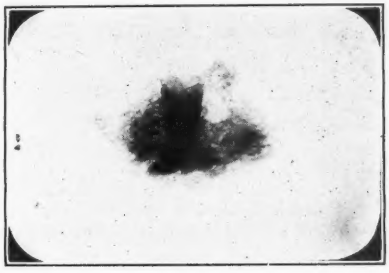


Fig. 274

Roentgenogram of the sequestrum after it had been removed from the mandible of the patient shown in Figs. 272-277. Note the retained root within the sequestrum. (See Figs. 272-277; also, ¶252-253.)

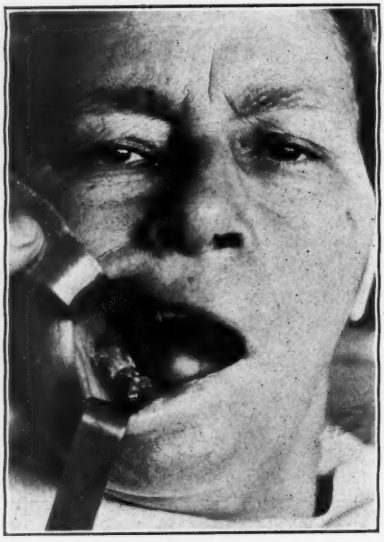


Fig. 275

Photograph of the mouth of the patient shown in Fig. 272. The picture reveals denuded grey bone protruding between loose, red hypertrophied mucoperiosteal flaps.

The bone surface is rough, irregular, carious and movable. There was no sensation of pain when the bone was probed. The conditions started with dull, diffused pain in the mandible following an attempted extraction. A marked swelling soon appeared, accompanied by pus formation and ending in the formation of a sequestrum. (See Figs. 272-273.)

The diagnosis is necrosis following acute osteomyelitis. (See Figs. 272-277; also, ¶252-253, 261.)

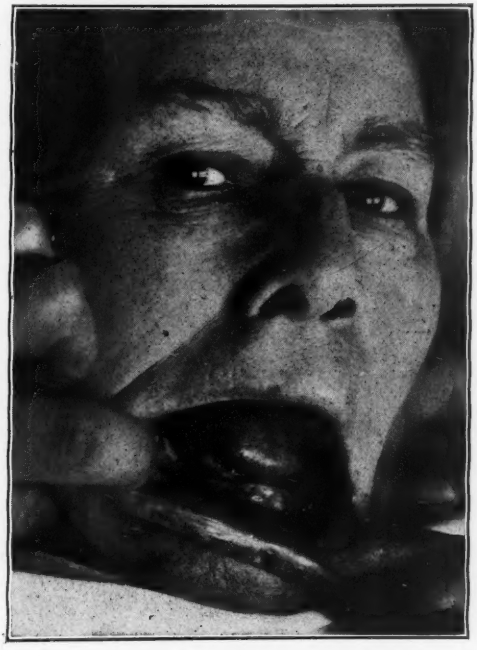


Fig. 276

Photograph of the mouth of the patient shown in Fig. 272 taken nine months later. This shows a perfectly normal appearance of the intra-oral tissues. (See Figs. 272-277; also, ¶216-217, 252-253.)

Fig. 277

Photograph of the patient shown in Figs. 272-276 taken nine months later. Notice that there is not the slightest degree of deformity. Compare with Fig. 272. (See Figs. 211, 272-276; also, ¶216-217, 252-253.)

¶253. If the removal of necrotic bone becomes necessary, much better results are obtained when a conservative procedure is followed, i.e., when only small sections are removed at a time. This often prevents very marked disfigurement. (See Figs. 272-277.)

¶254. To rely on nature entirely to throw off dead bone is not advisable in every instance, for this may lead to serious disturbances of the patient's general health, which cannot be neglected and requires careful attention.

¶255. Patients presenting necrosis of the maxillary bone must be given very careful instructions about their general health, in addition to surgical treatment. The damage done to the body through the continuous suppurative process will lower their vitality and resistance to such an extent that unless proper care is given to diet, hygiene and elimination, the condition may become very serious.

¶256. While necrosis of the maxilla has been observed now and then, this condition is much more prevalent in the mandible. (See Figs. 271, 278-279.)

Fig. 278

NECROSIS OF THE MAXILLA

Photograph of a patient, 41 years old, showing a swelling of the right side of the face caused by necrosis of the right maxilla (see Fig. 279), which followed extraction of the right maxillary canine and premolar. This extraction was done under local (infiltration) novocain anesthesia. (See ¶256 and 261.)

Fig. 279

Roentgenogram of the maxilla of the patient shown in Fig. 278 revealing the presence of isolated fragments of bone in the region of the central, canine and premolar. The ramifications of the necrotic areas as seen here are characteristic of diffuse necrosis. (See ¶252, 256, 261.)

¶257. Since in young subjects infection in the jaw bone spreads very readily and frequently results in necrosis, great care must be given to the condition of their mouths, and all forms of oral infection should be eliminated.

¶258. Some cases of necrosis show a swelling long after all other symptoms have disappeared and the condition is cured. Such swellings are results of the thickening of the bone, and the deformity may persist for the rest of the patient's life. However, these types of swelling require no surgical interference. (See Fig. 280.)

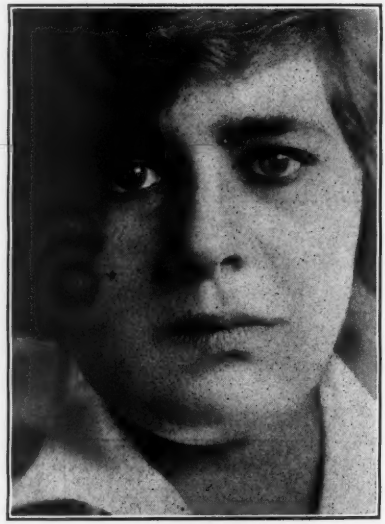


Fig. 280

POST-NECROTIC CONDITION

Photograph showing a swelling due to thickening of the right side of the mandible. This is not a pathological condition, but the result of an extensive case of necrosis of the mandible cured two years before this photograph was taken. It is suspected that the necrosis followed injections of a contaminated anesthetic solution. (See ¶258.)

¶259. As long as pus discharges through the sinuses, more sequestra may be expected to form. In such cases everything to help the draining of pus must be done. Often saline irrigations and loosely packed iodoform gauze strips are of great value.

¶260. Marked disfigurement due to pathologic separation or fracture may often be prevented if a sequestrum is not removed until new bone has been formed. (See Figs. 281-282.)

Fig. 281

NECROSIS OF THE MANDIBLE

Extra-oral roentgenogram of the right mandible of a patient, 38 years old, presenting a swelling of the right side of the face which followed extraction of the right mandibular premolars and molars under infiltration anesthesia. This roentgenogram reveals extensive destruction of the body of the mandible with a sequestrum formation. Because of a thick lingual plate, which was not affected by the disease, and which acted as a splint, no deformity followed the removal of the sequestrum. (See ¶260.)

Fig. 282

Roentgenogram of the same jaw as in Fig. 281. This shows the amount of regeneration that had occurred in two years after the removal of the sequestrum. (See ¶260.)

¶261. The continuous discharge of pus for more than two months in the presence of dead bone is an indication for surgical interference. Free access to the affected parts should be gained and all of the dead bone thoroughly removed, care being taken that no pocket is left. (See Figs. 278-279; also, Figs. 272-275.)

355 East 149th Street.

(*To be continued*)

Dr. Aguilar Is Honored

The American friends of Dr. Florestan Aguilar, of Madrid, Spain, will be pleased to know that he has been elevated by the King of Spain to the rank of Count, with the title, Conde de Casa Aguilar.

Dr. Aguilar's services to dentistry have been extended and beneficial and he well merits the honor which has been bestowed upon him.

A Bad Tooth In Italy

By John Haldane Blackie, A.B., Berkshire, England

The tiny village of Garda on the western shore of the Italian lake bearing the same name is so remote from such modern conveniences as railways and trolley-cars that the summer tourist passes it by. Either you must take a leisurely paddle-steamer from Peschiera, itself an inaccessible place, or you must catch the omnibus which runs once a day from Verona over the hills, bumping and lurching and hooting along rough, dusty roads, stopping here and there to pick up an unshaven priest or to put down an unwashed peasant. Late in the evening, when the sun has long since dropped behind the mountains and the waters of the lake are patched with faint and luminous tints, this omnibus will deposit you at the hostelry of The Three Crowns, whence, after the driver has swallowed half a liter of red wine, it will go roaring and lunging on its way again, up the narrow lakeside road to Malcesine. Here it is garaged for the night.

I first discovered this barbaric but delightful spot in July, 1926. The weather was uncomfortably warm and after ten o'clock it was hardly safe to bathe. I was taking a well-earned holiday and did not stray much beyond the garden of my friend's villa, except to walk down for a swim in the evenings. Returning from this, I often used to meet the omnibus bound for Malcesine and eventually decided to spend a day there. It contained, I learned, a fine old castle and prior to the revision of European boundaries had been the Italo-Austrian frontier town. My friend produced a very tolerable bicycle and advised me to start early so as to avoid the noonday heat.

The distance was some thirteen miles, and the road, as I have said, lay along the shore of the lake, running practically due north. It was entirely without shelter, and the sun beat pitilessly down on the back of my neck. I stopped once or twice to take a photograph or to drink a glass of beer and reached Malcesine about midday, by which time the heat was stifling. I decided to begin with lunch and found a hotel on the edge of the lake, where I could sit beneath a shady awning and look out across the glittering turquoise water to the snowy peaks of the Tyrol.

After lunch, which, drinks and tips included, cost about sixty cents, I started to explore the town. It proved disappointing. Except for the castle, an old Scaliger relic, half in ruins, there was nothing that was beautiful and little that was interesting. Consequently by two o'clock I found myself ready to return to Garda.

Now there is a law in Italy, which Mussolini has not attempted to alter, that peasants cannot be forced to work in the open between the hours of noon and three during the summer. It is at this time of the day that the sun shines most fiercely and is most likely to be injurious.

Englishmen are proverbially incautious, the Italian saying running: "Dogs and Englishmen sit in the sun." True to my national characteristics, I set off in this appalling heat.

It was about four miles from Malcesine that the tooth began to make itself conspicuous. It started to ache and throb with such vigor as to bring on a feeling of faintness. It was still aching and throbbing two and a half hours later when I reached the villa, very exhausted and very sorry for myself. It was still aching and throbbing that night in spite of aspirin and brandy. It continued its pranks throughout the night, and after breakfast the next morning a servant was dispatched to the village for the Commune doctor. This individual was the nearest approach to a dentist for miles around (the Italian peasant has perfect teeth), and there was probably not an English nor an American one nearer than Venice. He arrived toward eleven o'clock in a greasy and grubby suit, from the pocket of which he extracted a thermometer (without a case). This he thrust into my mouth and afterward replaced in his pocket without going through the slight formality of washing it. Probably it was washed once a fortnight. I then gave tongue.

"I want you to remove this tooth," I said.

He seemed to be alarmed by such Bolshevist sentiments and after a moment's thought observed dramatically: *"Una dente e sempre una dente."* (A tooth is always a tooth.)

I replied that, speaking generally, this was no doubt true, but that this particular tooth was to be a tooth no longer, and would he be so good as to extract it without further ado. He tried new tactics.

"You understand," he said, "that I should use no anesthetic."

"That," I answered, "is all the same to me. I have had enough of this tooth. I have no further use for it. Produce your pincers and haul away."

Then he played his trump card. "Before I do that," he said, "I shall try curative methods. I therefore prescribe a whole bottle of castor oil. *Tutt' una bottiglia."*

"Tutt' una bottiglia!" I said faintly, utterly unnerved by this display of Fascismo.

"Yes," he said triumphantly.

The castor oil arrived that afternoon, and with the assistance of brandy, lemon and Marsala I managed to absorb it. The only one of its consequences upon which it is necessary to dwell was the complete disappearance of the toothache half an hour later. This unexpected vindication of the doctor's method left me filled with a new respect for the Fascist movement.

It should be explained, in conclusion, that I had been suffering from an attack of what the Italians call *febbro di due giorni* (a two-day

fever), brought on by the heat of the sun, and that this had irritated a weak, dead molar. The castor oil removed the fever and with it the source of the irritation. The tooth gave no further trouble until after my return to England, where it received somewhat more professional treatment. The doctor at Garda would, I feel certain, be glad to know that it is still a tooth.

The Mill House, Bradfield College.

[THE CHIEF PREREQUISITE FOR PYORRHEA]

It is well known that, when we extract a pyorrhetic tooth suppuration is quenched at a blow. The inflammation was not in the tooth itself, and, by extraction, we have certainly not influenced the inflamed tissue or the micro-organisms; and yet the inflammation instantly disappears. By extraction, there is only one thing which is certainly brought about, and that is the destruction of the pocket. The pocket consists of two walls, the gingiva and the surface of the tooth. By removal of the tooth the pocket has ceased to exist. From these considerations we may conclude that the presence of a pocket is the chief prerequisite for the existence of pyorrhea, the inflammation and the bacterial activity being of secondary importance.

—GOTTLIEB.

Togo's "Discursions"

Mr. Editor of Dental Magazine Maintaining Publication Schedule During Superheated Month of August

Misguided Sir:

High Temperatures and extreme Humidity are perhaps responsible for following occurrence which happened while they were undertaking time-honored measures for Farm Relief by causing corn to grow upward in size and downward in price at one operation—as is usual in such cases. Thank you!

On superheated night similar to foregoing, strange dream was experienced by Japanese brains. In beautiful City containing all usual specimens of Vox Populi suddenly appeared large numbers of specially trained Policemen who proceeded to courteously accost assorted persons as met on sidewalks and other open spaces and gently but firmly lead all such to large and well appointed rooms resembling Eastman Clinic at Rochester N. Y. or Forsyth Infirmary at Boston. Here each person was placed in Dental Chair and careful check up was made of Mouth Conditions as found to be existing; then questions similar to following were propounded: "Who has been doing Dental Work of personal nature for you in last several years?" "Are said parties still living and if so why and where?" "Give last known address of said persons to best of Hon. Ability!" All conditions and information when forthcoming were carefully noted on Card Index of substantial nature and contents classified.

On considerably subsequent day officers presented charges to various Doctors of D.D.S. based on results of examination and check up of said victims as secured in open spaces of streets and other dangerous regions. Charges against said Doctors read perhaps somewhat as follows: "Dr. U. R. Oletimer, conditions discovered in 78 mouths treated chiefly by yourself were found to be substantially as follows:

"All approximal cavities in molar and bicuspid teeth were filled with amalgam in highly deplorable condition of disability so far as chewing and proper functioning were concerned.

"All gum tissues around such fillings were highly inflamed, bleeding easily and plainly in perpetual state of hypertrophy and other distressing pathological etc.

"Patients stated that they had left care of teeth to your judgment and you had made installations of work as noted, stating that amalgam was recognized as standard filling in all back teeth not used in smiling or other facial gymnastics.

"What if anything have you to say for yourself before license

allowing you to continue such practices is permanently revoked and replaced by permission to pound rock for benefit of Hon. Commonwealth for balance of natural lifetime?"

Complete silence on part of Dr. Oletimer as attendants led him into waiting darkness of Oblivion.

Court continuing addressed Dr. Ezemoney as follows:

"All approximal cavities in mouths of your patients were filled with so-called porcelain fillings; these were uniformly disintegrated where contact points should have been and in large majority of cases re-decay was present in most distressing form, often in such a way as to render all hope of saving important tooth out of question.

"Your patients stated that work had been installed under assurances that porcelain was highest grade material possible to be used and was charged and paid for accordingly.

"Your punishment will be to have approximal cavities cut in all of personal molars and bicuspids, then have only such fillings placed in said cavities as you have been placing for Hon. Patients after which you will be fed on diet of tough meat and mature celery stalks for balance of natural lifetime with all toothpicks and other methods of partial relief kept forever out of reach."

Tears streamed down cheeks of Dr. Ezemoney as he was led to where first steps of his terrible punishment were to be inflicted.

Next case called was Dr. Salesman who looked extensively downcast as following brief statement was made: "Dr., we discover that you have been specializing in polite hold-up game using high pressure conversation instead of product of Messrs. Smith and Wesson or Colt Automatic as Cash Separator.

"Owing to unfortunate Advertising campaigns and other misleading sources of information many people are now presenting at offices of D.D.S. entirely convinced that they are in possession of adult case of Pyorrhea when as matter of clinical fact they are entirely free from such disaster.

"Instead of correcting wrong impression in minds of unfortunate victim of newspaper suggestion you have been following methods of gold brick artist in selling to such mental sufferer entirely bogus line of treatment which, while perhaps harmless, has been uncalled for and completely dishonest.

"Your punishment will consist in being obliged to buy second-hand cars at owners' first valuation for remainder of natural lifetime."

Cases of R. E. Movable and other specialists were still to be called when passing fire engine caused violent awakening which terminated most interesting dream experience. Thought remaining in Japanese brain is as follows: If actual check up of dental work similar to that

dreamed about *could* be undertaken during daylight hours in assorted American Cities, how many men now experiencing lucrative but undeserved Public Support would find themselves obliged to greatly improve or suddenly discontinue?

Answers should be carefully tabulated as received.

Hoping you are the same,

Yours considerably,

TOGO.

[IS EXTRACTION THE ONLY REMEDY?]

Without stopping to examine into the soundness of the connection between the different internal maladies of occult origin and affections of the teeth, the possibility of which may be conceded in some cases, we must ask ourselves whether in these cases the extraction of all suspected teeth is really the only remedy. The answer to this question is, to my way of thinking, of much greater importance to the practitioner than fruitless theoretical disputes.

—GOTTLIEB.

DIGESTS

MOTTLED ENAMEL—REPORT OF AN EXAMINATION OF AN AFFLICTED DISTRICT IN ITALY

By Frederick S. McKay, D.D.S.

A report of this condition had been made in 1902 in regard to Pozzuoli, a suburb of Naples. In 1927 the author was informed that the condition no longer existed, the explanation being that the water supply had been changed. This statement was not verified, but a study was made in the neighboring city of Resina.

This town is at the foot of Vesuvius and until a few years previous the inhabitants were dependent on wells for their drinking water. The mottled enamel appeared only in the older people, and none of the children who had been brought up on the piped-in water gave evidence of this trouble.

In the outskirts of the town, where well water was still used, the children as well as the adults had mottled teeth. This would lend strength to the belief that mottled teeth are due to peculiarities of the drinking water, and the next step in the study is to find out the chemical factor or factors responsible for this abnormality.—*The Journal of Dental Research,* June, 1928.

THE EFFECT OF ROENTGEN RAYS ON THE BLOOD

By Eugene P. Pendergrass, M.D.

More and more, dentists are equipping their offices with x-ray machines but do not generally realize that they are being continually exposed to the secondary rays. The manufacturers and their salesmen either do not know of this danger or do not care what happens to their customers.

There is an increasing number of deaths due to aplastic anemia that can be traced directly or indirectly to the radiations of x-rays or radium. These rays have a profound effect on the constituents of the blood. Some insurance companies are refusing to insure those who use x-ray apparatus in spite of the fact that this agent is of great aid in the prolongation of many lives.

Complete examination of the mouth calls for the taking of from

ten to fourteen small films, and as a rule the dentist stands close to the patient without proper protection. If only three of these examinations are made during a week, it is probable that the dentist will have been exposed more than the medical roentgenologist who is working all day with proper protection.

The total number of leukocytes is progressively decreased, while the lymphocytes are increased and show abnormal varieties. In some cases the clotting time of the blood is prolonged and the blood pressure lowered.

The dentist should be at least ten feet from the patient when making an exposure and preferably should be behind a lead screen at least 1/32 inch in thickness. The tube should be completely covered with lead glass, and the operator should carry in his pocket a small dental film on which has been placed a lead washer. At the end of two weeks this film should be developed, and if it is moderately exposed, the operator is receiving too much irradiation. A blood count should be made every three months.—*The Dental Cosmos,* June, 1928.

A STUDY OF THE EFFECTS UPON THE HYGIENE AND MICROBIOLOGY OF THE MOUTH OF VARIOUS DIETS, WITHOUT AND WITH THE USE OF THE TOOTHBRUSH

By Beatrice F. Howitt, M.A.; W. C. Fleming, D.D.S.; and F. V. Simonton, D.D.S.

This experiment was undertaken to find out the endogenous contribution to the oral debris and the effects of a "sticky" diet and a detergent diet together with the effectiveness of the toothbrush. The subject was a man, 34 years of age, with teeth in normal occlusion and free from caries. The condition of the investing tissues was good.

Desquamated epithelium was a most important element of the oral debris and contained an abundant amount of the usual mouth organisms. There was no more debris from a "sticky" diet than there was from a supposedly detergent diet. A carbohydrate diet increased the aciduric forms of bacteria.

Cleaning with a toothbrush was found to be far more effective than the supposed cleansing by the use of a detergent diet, and when the toothbrush was not used, the teeth appeared cleaner following a "sticky" balanced diet than when a supposedly detergent diet was given.—*The Dental Cosmos,* June, 1928.

THE ARREST OF DENTAL CARIES IN CHILDHOOD

By Julian D. Boyd, M.D. and C. L. Drain, D.D.S.

Susceptibility to caries is almost universal in childhood, the average child having seven or more affected teeth.

It has been noted, however, that in children who were suffering from diabetes and had been under treatment for some time caries was arrested, and it seems probable that the carefully restricted diet has something to do with this condition. An abundance of dairy products, fruits and vegetables together with cod liver oil are given, which supply mineral salts and vitamins. The ash is predominantly basic, in sharp contrast to that found in children who are allowed to eat pretty much what they wish.

Since caries is very frequent in childhood, pregnancy and lactation, it would seem to depend on metabolic disturbances, which may in turn depend wholly or in part on the diet. These disturbances can show their effect in a very short time.—*Journal of the American Medical Association,* June 9, 1928.

THE ROENTGENOGRAMS AS A DIAGNOSTIC AID IN PLANNING PARTIAL RESTORATIONS

By John Oppie McCall, D.D.S., F.A.A.P., F.A.C.D.

If the teeth were normally placed and free from disease, the task of constructing partial restorations would still be difficult, but these conditions are rarely found. Not only the dentulous areas should be examined but also the edentulous, which may contain roots, unerupted teeth and residual infections.

No pulpless tooth showing signs of periapical infection should be used for an abutment nor should it be retained if its subsequent removal will necessitate the complete rebuilding of the denture. Teeth with vital pulps are not always in a healthy condition and may cause trouble when subjected to the additional strain of supporting a restoration.

Condensing osteitis may or may not be of an inflammatory nature, and while the thickening of the bone would seem to be a favorable condition for the support of a denture, yet in many cases it is followed by a breaking down and the commencement of periodontal disease.

Hypercementosis is found on vital and non-vital teeth, and in the former case it need not be regarded as serious.

The length of the roots and the inclination of the teeth should be studied together with the extent of the alveolar absorption.—*The Journal of the American Dental Association,* June, 1928.

THE PRINCIPLES OF PREVENTIVE PERIODONTIA

By Arthur H. Merritt, D.D.S., F.A.C.D.

"It may be said that the principles of preventive periodontia consist in the observation of several different but related factors, each of which has for its object the prevention of treatment of periodontal diseases:

"1. Oral hygiene and the elimination from the mouth of all irritating factors of whatever nature.

"2. The active, intelligent and persistent cooperation of the patient in maintaining cleanliness of the mouth and teeth.

"3. Gingival stimulation, through a more vigorous use of the teeth and jaws, supplemented by systematic stimulation of the gingival and subjacent tissues, through the proper use of the toothbrush.

"4. A wider knowledge and a more intelligent application of the principles of dietetics, the hope being expressed that, in the near future, the nutritional conditions which underlie and cause the deposition of serumal calculus shall be found.

"5. Finally, a broader understanding of the more or less obscure systemic conditions which act as predisposing factors in the etiology of periodontal lesions, and which, in many instances, unfavorably influence prognosis."—*The Journal of the American Dental Association,* June, 1928.

FOREIGN BODIES OF DENTAL ORIGIN IN THE AIR PASSAGES

By Louis Ginsberg, B.S., M.D.

"1. A variety of objects of dental origin have been encountered as foreign bodies in the air passages.

"2. Any object disappearing from the mouth during an oral surgical procedure should not be assumed to be swallowed, but rather to be aspirated, until the contrary is proved.

"3. All dentures should be kept in good repair and properly fitted. The mouth should be carefully inspected for dentures, loose teeth and any loose corrective appliance before a general anesthetic is administered.

"4. The most constant and characteristic immediate symptoms are cough, dyspnea, wheezy respiration and pain in the chest. The late symptoms are those of pulmonary suppuration or tuberculosis.

"5. Diagnosis of a foreign body is made on the history, physical examination of the chest, roentgen-ray examination and, in doubtful cases, by bronchoscopy.
"6. Bronchoscopy for diagnosis is indicated in early doubtful cases.
"7. Prolonged sojourn of a foreign body in a bronchus produces serious damage to the lung.
"8. Expectant treatment is always hazardous, and lung infection may develop, from which the patient may die.
"9. Skilfully performed bronchoscopy is a safe procedure."—*The Journal of the American Dental Association,* June, 1928.

CANCER STUDIES

According to Lombard and Doering, bad teeth in males were more common among the cancer group than among the controls. This applied to cancer in general and was not limited to cancer of the buccal cavity. Heavy smoking was more common in the cancer group than among the controls. Heavy smoking was largely pipe-smoking and was particularly more common in those persons with cancer of the buccal cavity. The figures gave a suggestion of an hereditary predisposition to cancer. The patients with cancer ate less than the controls, but this probably was wholly due to the presence of the disease.—*New England Journal of Medicine,* April 26, 1928, per *Journal of the American Medical Association,* June 9, 1928.

DENTAL ECONOMICS

When the Agent Leases

By M. L. Hayward, Hartland, N. B., Canada

"I understand that you are the agent for the owner of the office on the corner of First Street and Lawn Avenue," the dentist suggested.

"Yes, and I'll rent to you for a year at $100.00 a month, and you pay the city taxes," the agent agreed.

"Have you proper authority to execute a lease?"

The agent produced a letter from the owner.

"I hereby authorize you to lease my building on the corner of First Street and Lawn Avenue for $100.00 per month, the tenant to pay the city taxes, and to execute a proper lease under seal," the letter read.

"That's satisfactory," the dentist agreed. The lease was duly written and signed and sealed by the dentist and the agent, but the dentist, in order to be on the safe side, promptly notified the owner of the transaction.

"I've already leased the office for $150.00 per month," the owner declared.

"I saw a letter from you to the agent authorizing him to lease for $100.00 per month, and here's my signed lease," the dentist retorted.

The owner looked at the seals and the signature.

"Not worth the 'blind' typewriter it is written on," the owner remarked. "The lease is under seal, and the law is that the authorization of an agent to execute a lease under seal must be given under seal, so my letter is not sufficient authority."

And the owner was right, as the California, Illinois, and Indiana Courts have ruled in his favor on this point.

A Question of Demand

By M. L. Hayward, Hartland, N. B., Canada

"And the said tenant agrees to quit and deliver up possession of the leased premises at the end of said term in as good condition as when leased, reasonable wear and tear and damage by the elements excepted," the dentist's lease provided.

"And it is further agreed that any permanent improvements made to said premises by said tenant shall be paid for by the landlord at the actual amount thereof plus 6%," another clause of the same lease stipulated.

The lease in question expired on a certain Saturday, the landlord called on Monday morning and found the tenant doing "business as usual."

"What does this mean? You were supposed to be out of here on Saturday," the landlord demanded.

"I don't have to move out until you've made a demand for possession," the dentist stated.

"I don't have to make a demand. The lease says you're to deliver up possession at the end of the term, and the term ended Saturday night at 12 o'clock."

"I admit that is the rule in ordinary cases," the dentist argued, "but it does not apply to a case like this where you're bound to pay for my improvements. Under our lease you have to tender the price of the improvements and demand possession before you can terminate the lease."

This is a leasehold situation that could arise any day, on which the Missouri and New York courts have ruled in favor of the landlord.

See the case of *Tolman* vs. *Coffin,* 4 N. Y. 134.

PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

POLISHING GOLD.—I have derived a great deal of benefit from your Practical Hints, so thought some one might make use of the following suggestion:

After gold has been dressed down ready for polishing, a small wheel of fine brass wire will produce a bright finish in a few minutes without the use of abrasives. It will penetrate any deep carvings more rapidly and efficiently than can be done with a bristle brush.

The brush I use is a small one intended for cleaning burs, and I also find it better for removing rust and polishing instrument-handles than anything I have tried.

C. C. LOWE.

Editor, Practical Hints:

(1) I am seeking information regarding a patient, female, 38 years of age, who has very sensitive teeth on the buccal surfaces and interproximal spaces. There are no cavities and the teeth look clean, sound and good. I tried to treat them with silver nitrate, but had no good results. X-rays do not show any abnormality.

(2) How can I prevent pain and swelling after extraction?

G. I. B.

ANSWER.—There is nothing so effective for sensitive teeth as silver nitrate, and if that does not work, I should not know what to recommend. It seems to me that there must be a break in the enamel, and that cutting out and filling is called for.

In regard to pain after extraction, this may be due to several causes. Strict asepsis in making the injection has not been maintained or the

injection has been made into an abscessed area, or, finally, excessive trauma has occurred in the extraction of the tooth. The first two causes can be prevented, but sometimes the last is unavoidable.

Editor, Practical Hints:

I have two girls, aged 5 years and 2 years 9 months. They are both under weight and small for their age, but neither has any signs of decayed or faulty enamel development in the deciduous teeth. The older girl contracted pyelitis at 8 months, which lasted for 2½ months; scarlet fever at 4 years and measles at 5 years of age. The younger child had scarlet fever at 2½ years.

I know that this is serious regarding calcification of permanent teeth. What are their chances of having calcification of permanent crowns?

Can you suggest any treatment which will aid me?

The children's specialist told me that my older child was soft-boned, and that we should probably have trouble with deciduous teeth, but have been exceptionally fortunate, due no doubt to diet of mother and children.

Your opinion and advice will be thankfully received.

A. R. P.

ANSWER.—Milk furnishes the best source of calcium, and its absorption is increased very much by sunshine. Calcium lactate is also of aid, especially when taken in conjunction with cod-liver oil. Oranges promote the retention of calcium. The use of free sugar should be cut down as much as possible.

This is about all the information I can give you. I would advise you to consult a pediatrist and have the children treated for rickets, which is a calcium-deficiency also. I am rather surprised that your physician has not done this already.

Editor, Practical Hints:

I have a patient, aged fifty years, who has been wearing full upper and lower dentures for about a year. The articulation seems good and the plates stay in place very well.

This man complains of not being able to articulate his words and says that it is very embarrassing to him.

These dentures were made by another dentist, and he has appealed to me for help. Can you help me?

B. M. D.

ANSWER.—Probably before the dentures were inserted, the patient's

mouth was in a mutilated condition for some length of time. This allowed the tongue to spread and now he finds that there is not room enough with the dentures in place.

There is nothing that you can do, and it is only a matter of his accustoming himself to them. The length of time this will take will depend wholly on his determination to overcome the difficulty.

Of course, a denture with the thinnest possible palate will help some and the addition of rugae might be of material benefit.

Editor, Practical Hints:

I have a boy patient, fourteen years of age, with pronounced hypertrophy of the interproximal gingiva of both the upper and lower anteriors. The teeth are in good condition and free from deposits. A carbon-paper test shows the lower incisors to be striking the upper close to the lingual border.

Do you consider this to be the cause? What correction would you advise?

P. C.

ANSWER.—Without doubt the hypertrophy of the gingiva is due to traumatic occlusion. It would be impossible to tell you what to do without seeing models of the case, but it is evidently in need of orthodontic interference.

Editor, Practical Hints:

Several days ago a gentleman, about sixty years of age, came to me in regard to the reconstruction of full upper and lower dentures to replace those which he had worn continually for the last nineteen years.

When questioned as to the efficiency of the dentures, he informed me that they were satisfactory, but that during the last two months certain movements of the mandible had produced a marked "snapping" or "clicking" in the left condyle, which was very annoying.

The mucosa beneath the present denture seemed normal and, aside from the normal resorption, the dentures seemed satisfactory, considering the number of years worn. This "snap" was audible at a distance of 25 feet.

I informed him that I could not be positive that new dentures would overcome this condition, and hence I am seeking your advice. This causes no pain whatever, is created by a downward and forward movement and is confined to the left side.

The bite of his present dentures seems to be closed a trifle too much, but that perhaps has no connection in this case.

R. H. C.

ANSWER.—I think without doubt that the snapping or clicking sound in the condyle is due entirely to the resorption of the process and the closing of the bite. Because of this the condyle is forced into an abnormal position.

I believe that if you will construct new dentures opening the bite to its proper position, the trouble will disappear, and I would do this as soon as possible, for there have been cases reported where deafness has resulted from this condition.

Editor, Practical Hints:

Would you kindly advise me as to the precautions I should take in removing quite a number of teeth in a diabetic patient? The patient is at present suffering from a bad case of pyorrhea.

J. S. B.

ANSWER.—In regard to extracting teeth for a diabetic patient, I should consult with the physician who is treating the case. There have been cases reported when the patient went into a fatal coma on the removal of a number of teeth.

Editor, Practical Hints:

I am enclosing x-rays of one of my patients who complains of having trouble on the lower right side.

She has a great amount of pain when she eats anything like corn bread and cannot eat anything at all on that side without great pain. I cannot find anything the matter myself, but any assistance will be appreciated.

I have another patient who has a large swelling at the base of the masseter muscle. There is nothing the matter with the teeth. The swelling feels like a mass of cells filled with fluid.

J. G. B.

ANSWER.—I regret to say that I could not get very much information from the x-rays. Some are indistinct, others are distorted, while still others do not show the ends of the roots and the surrounding structures. From what I do see, I can find nothing the matter. I should test all the teeth on the right side for vitality. See that contact points are good, and that there is no traumatic occlusion. Examine carefully for pyorrhea pockets and defective fillings.

The second case seems to point to the existence of a cyst, and I should refer the case to a surgeon.

Editor, Practical Hints:

I have a patient, female, 47 years old, of stocky build and apparently

in good health. She complains of soreness of the mucous membrane under her upper plate and also of neuralgic pains in the upper jaw. Upon examination I found the mucous membrane slightly congested and little red spots resembling bleeding points scattered over the ridges and hard palate. The inflammation under her plate has subsided. The neuralgic pains seem to start in the tonsillar region and radiate toward the temporal region and along the infra-orbital canals. Cold air or water sometimes starts these neuralgic pains; also, blowing her nose will sometimes cause a pain to radiate from nose to ear. At other times these pains start with apparently no cause.

She had her teeth out when she was 20 years old and was never bothered with these pains until about two weeks ago. She had very bad tonsils, which were removed in June, and ever since her tonsillectomy she has had trouble with her throat. All sinueses and edentulous areas are negative. Could you give me a clue as to the etiology of the neuralgic pains?

G. W. B.

ANSWER.—It seems to me that your patient has developed a case of tic or something very similar to it. It is very hard to find the cause of certain neuralgic pains and still harder to stop them.

If your patient has the tic, she should be placed in the hands of a competent physician. Sometimes an alcohol injection is sufficient, while in others it is necessary to remove the ganglion.

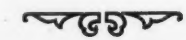
One thing you can do is to see that the denture is not bringing any pressure to bear on the nerve endings at the palatine foramina.

Editor, Practical Hints:

Patient, male, approximately 50 years of age, since teeth were all extracted, complains of salty condition of saliva. I should appreciate any information in regard to it.

J. A. T.

ANSWER.—The character of the saliva is due to metabolic conditions in the body and cannot be affected by local oral conditions. If your patient has just started to wear dentures, they will act as foreign bodies and increase the flow of saliva, but that is all. This would seem to be a case for a physician.



DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of The Dental Digest, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

Could you please recommend some schools where I could take a course in dental hygiene?

J. B., Ohio.

ANSWER.—We do not recommend any special school or schools in our department. All we can do is to give you the address of some that are located near you.

Northwestern University Dental School, Chicago, Ill.

College of Dental Surgery, University of Michigan, Ann Arbor, Mich.

College of Dentistry, University of Minnesota, Minneapolis, Minn.

Temple University Dental School, Philadelphia, Pa.

School of Dentistry, University of Pennsylvania, Philadelphia, Pa.

Marquette University, College of Dentistry, Milwaukee, Wis.

In the September 1927 issue of THE DENTAL DIGEST you will find a complete list of schools giving training in dental hygiene.

Dear Miss Pierce:

Please send me the particulars about the course for dental assistants, where it is given and what the cost is. E. W., N. Y.

ANSWER.—The only course for dental assistants that we know of in the East is given at the Medical College of Virginia, School of Dentistry, Richmond, Va. A letter to Dr. R. D. Thornton, Dean, will no doubt bring you full particulars in reply. The Dental Faculty, University of Toronto, Toronto, Ontario, also has a course for dental assistants. Dr. Wallace Seccombe is Dean there.

Dear Miss Pierce:

In removing a vial of silver nitrate from the bracket table it overturned and spilled down the front of my uniform, staining it badly. As it is a new poplin uniform, I turn to you for help to remove the stains and trust you can suggest something.

I want to tell you that I have received many helpful suggestions from your department. I do not think that the assistants in the offices receiving THE DENTAL DIGEST could get along without it.

M. S., Newark, N. J.

ANSWER.—Silver nitrate stains are not easily removed, especially if they are of long standing. However, we hope the following will help to solve your difficulty:

Place the stained portions of the uniform over a piece of glass or china and paint the spots with tincture of iodine, allowing it to remain a few moments to convert the silver salt into an iodide. Then apply to the spots a strong solution of sodium or potassium thiosulphate. When the stains have disappeared, wash the portion of the garment that has been cleaned with a very weak solution of ammonia. Silver nitrate becomes very hard to remove if the stained fabric has been exposed to the light, as the light sets the stain.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

A first aid exhibit and a surgical assistance clinic will be presented by the Educational and Efficiency Society for Dental Assistants, New York, as part of the demonstrations before the American Dental Assistants Association at their annual meeting in Minneapolis, Minn., this month. These sections will show how the assistant can be of value in any emergency arising in the dental office, and how she may be of aid in oral surgery, as well as the preparation and sterilization of gauze, swabs, instruments, towels, etc. A table and poster exhibit picturing the work of the dental assistant, with particular reference to

her duties as chair assistant, has been prepared as a contribution to the general display to be presented by the American Dental Assistants Association at the convention of the American Dental Association in Minneapolis.

The Society will participate in the Exposition of Women's Arts and Industries at the Hotel Astor, New York, during the week of October 1st, 1928. The Society will endeavor by means of posters and table displays to show the duties and value of the assistant to the dentist and the laity. The exhibit will set a precedent in presenting this phase of women's activities, for no branch of women in the service of the profession of dentistry has ever taken any part in the Exposition of Women's Arts and Industries. The Exposition is open to the public and includes almost every branch of feminine activity in commerce, industry and the professions.

The regular program of lectures, classes and clinics will be resumed in the fall. The date of the first meeting of the new season falls on Tuesday, October 9, 1928, at 8.00 P. M.

The Society meets regularly on the second Tuesday evening of each month, October to May, inclusive, at the Academy of Medicine, 2 East 103rd Street, New York. Members of the dental profession and their assistants are cordially invited to attend.

The Cornerstones of Success*

By Agnes F. MacNeil, Brooklyn, N. Y.

Your Society is to be congratulated on the strides it is making to help the dental nurses of Philadelphia and vicinity. The very foundation upon which your organization has been founded should encourage all young women engaged in the profession of dental assistant to become members and help in the great work which we are trying to accomplish.

Education, efficiency, loyalty and service, the cornerstones of the dental assistants' societies, should be the uppermost thoughts of each one of us. Let us consider each in turn. First, we have *Education,* the systematic development and cultivation of the natural powers by inculcation, example, etc. Heretofore dentists have had to spend many valuable hours in the course of their daily practice in instructing the young women employed by them in the fundamentals of dental assisting. Today our classes in the society in which we hold membership are trying to relieve the dentists of this responsibility and also help us who have been in the profession of dental nursing for any length of time

* Read before the Philadelphia Association of Dental Nurses, November 16, 1926.

to acquire knowledge that we should not otherwise receive. The classes, therefore, are a school for all of us. Follow the example of your dentist, who is constantly taking postgraduate courses. Our classes are practically postgraduate courses, which enable us to keep abreast of the times with modern methods, etc.

Next we have *Efficiency,* the power to act with results. By efficiency we relieve our employer of the many details occurring daily in the conduct of the office. The dentist should be free to practice dentistry. We should be his right hand by cooperating and by giving our undivided attention to the duty at hand. Let us do the best we can—no one can ask more. We can be of great value if we will only assume our responsibilities and perform them in a manner becoming our position.

Third, there is *Loyalty*—allegiance, constant and faithful in any relation implying trust and confidence. It is easy enough to see how loyalty should be one of our principal strongholds, for are we not entrusted with many personal matters of both the dentist and the patients? What goes on in our individual office is personal with that office and belongs to that office only, therefore a breach of loyalty is made if we convey to any outsider, whether of the profession, at our homes or elsewhere, anything personal to the offices in which we are employed. Let us, then, pledge ourselves to keep sacred the matters which belong to our office.

The last is *Service*—any work performed for the benefit of another. If we avail ourselves of all the opportunities to serve as set forth in the aforementioned cornerstones, we cannot do anything other than give our best service to the dentist and patient without having to think about it. Service is what each and every one of us has been created for—not selfish service, but service for the betterment of mankind.

Now that I have pictured to you the meaning of our cornerstones, may I urge you to be leaders in the cause for which you have organized. Take advantage of your opportunities. In speaking of opportunities I am reminded of a story.

A Brooklyn preacher, in offering his parishioners communion one Sunday, said: "I cannot give you the blessings and the benefits of this Holy Feast; you must appropriate them for yourselves. The banquet is spread—help yourself freely."

We may be invited to a feast where the table is laden with the choicest foods, but unless we appropriate and assimilate them, they can do us no good. And so it is with us as members of this wonderful organization of ours. The table of learning has been spread with many choice dishes of the all-sustaining food-knowledge. The tree of opportunity is growing within our arms' reach. Are we stretching out to pick the fruit or are we sitting by and letting others gain while we lose?

To rise in our endeavors, we must think ahead and act. If we learn to produce useful and valuable ideas, it will be impossible to deter us in what we are trying to accomplish. How can we acquire the education or the knowledge to make us successful? By taking advantage of our classes, by profiting by the mistakes of others, and by close observation of those with whom we come in contact.

Let us create an ideal. The very country in which we live is a republic because our forefathers founded it on the ideal of freedom. If we choose the future of the dental nurse as our ideal, then let us put forth our very blood to accomplish that for which we have founded this ideal. Let each and every one of us stand by our colors, and by our ability let us prove our sincerity of purpose. It would be sheer foolishness for us to want to be artists without studying the principles or the technic of the art, therefore let us start in to support our cause by taking advantage of the wonderful opportunities placed on our table, which will certainly help us to ascend the ladder of success.

In closing I should like to quote Henry Ford:

"My advice to business men is to read a lot and think a lot and work a lot. I started that way. I kept on thinking, and I am still thinking. The habit of analysis, the ability to get under the surface of things and at the vital essentials gives a man tremendous advantages over those of his competitors who do not do likewise."

113 South Elliott Place

Books Received

A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISRAELI

Dental Histology and Embryology, by B. Orban, M.D., Professor of Dental Histology and Pathology, Chicago College of Dental Surgery, Dental Department of Loyola University, Chicago, Ill.

This book contains all the new ideas on the subject and follows closely the work of Gottlieb of Vienna, the author's preceptor. It is primarily to be used as a textbook for students, and this classification might well include the majority of the profession. It has been aptly stated that the true understanding of pathology necessitates a knowledge of histology, yet dentists are daily treating pathological conditions when they have not the slightest conception of oral histology.

The book is profusely illustrated with diagrams and exceptionally fine microphotographs, and by means of these a knowledge of the subject is made as easy as possible. The author seems to have kept an open mind and quotes freely from the work of other men so that the reader may consider the different viewpoints on disputed questions.

On the whole, it is a practical and valuable book, but it is to be regretted that an index has been omitted.

223 pp., with 192 illustrations. Chicago: Rogers Printing Company, 1928.—A. M. J.

The Hyatt Study Club

In the fall of 1927, at the instigation of Dr. Thaddeus P. Hyatt, a group of men met to consider the possibility of evolving an operative procedure for the prevention of caries. The regular monthly sessions were productive of much interesting discussion, and certain more or less established data were formulated as a working basis, as follows:

A. That enamel is the hardest tissue in the human body, composed for the most part of inorganic substance, and that its chief function is to serve as a protective covering for the more vital tissues of dentin and pulp against bacterial, mechanical, chemical and thermal irritants.

B. That the enamel is completely formed prior to the eruption of the tooth, the enamel-producing cells, the ameloblasts, becoming completely atrophied, and for that reason the enamel, unlike the dentin, does not possess the very important property of repair.

C. That constitutional conditions will influence changes in the dental tissues and particularly nutritional deficiencies and parathyroidal dysfunction, in that the bodily reserve of calcium salts may become diminished and may thereby diminish the calcium content of the dental tissues, lowering their general tone and perhaps making them more prone to bacterial invasion.

D. That the smallest opening in the enamel is conducive to a bacterial colonization and invasion.

E. That pits and fissures are natural defects, evidences of improper coalescence of the primary parts.

F. That, based upon the statistical evidence of an examination of about 19,000 mouths at the Metropolitan Life Insurance Company under the direction of Dr. Thaddeus P. Hyatt, by far the largest number of carious cavities have their origin in pits and fissures and for that reason the adjective *pre-carious* was prefixed to pits and fissures by the unanimous consent of the Hyatt Study Club.

G. That caries appears to progress much more rapidly in dentin than in enamel and therein lies the greatest danger of pre-carious pits and fissures, in that the dentin may be appreciably destroyed before there is any marked destruction of the enamel at the point of entrance.

H. That to establish an operative procedure that would eliminate pre-carious pits and fissures would prove to be a definite step in the direction of preventing a large proportion of carious cavities.

Prompted by these data, the following plan of investigation was adopted:

1. To standardize the terminology to be employed in connection with prophylactic odontotomy.

2. To evolve a comprehensive diagnostic procedure for the detec-

tion of pre-carious pits and fissures and to determine the age at which the operative procedure should be instituted.

3. To evolve an operative procedure that will necessitate the removal of the least amount of tooth substance and yet, at the same time, secure the maximum amount of protection for the dentin and pulp.

4. To standardize the instrumentaria.

5. To standardize the filling material.

Three subcommittees were appointed to carry on these investigations. The Hyatt Study Club believes it is desirable to secure the cooperation of all members of the dental profession throughout the world who are interested in the possibilities of prophylactic odontotomy and therefore cordially invites them to correspond with us. All letters should be addressed to the Secretary, Dr. Joseph E. Kauffmann, 110 East 54th Street, New York, N. Y.

PUBLICATION COMMITTEE,

LEROY L. HARTMAN, D.D.S.,
MAURICE WILLIAM, D.D.S.,
M. DIAMOND, D.D.S., *Chairman.*

Reduced Rates On Air Mail Are Effective August 1, 1928

By Arthur C. Lueder, Postmaster, Chicago, Ill.

It will cost only one-quarter as much to send the average business or social letter by air mail on and after August first as it does now, for on that date the rate will be reduced from ten cents a half ounce to five cents for the first ounce or fraction and ten cents for each succeeding ounce or fraction. This means that an ordinary letter may be sent anywhere in this country for five cents, and that an air mail package which now requires $2.00 postage may then be sent to any part of the country for $1.05.

This new low rate, effective August 1, 1928, holds out tremendous possibilities for the American business man. This reduction comes when the air mail companies are giving the most dependable service in their history. The man or woman using air mail for business or social correspondence has the benefits and connections of twenty-eight air mail routes over 12,457 miles, serving 62,000,000 people directly and millions more indirectly. Each twenty-four hours the mail planes fly 20,000 miles and their daily average mail load now exceeds three tons. Air mail averages more than 100 miles per hour and planes are flown night and day in fair or foul weather.

Speed is the essence of air mail service, and the record of efficiency established by the air mail in the last ten years, during which time nearly 16,000,000 miles were flown and 302,000,000 letters carried, merits the patronage of every business man and woman.

It behooves every alert business man to instruct his mailing department to determine where and how time and money can be saved by use of air mail. Each day there is some striking instance of how air mail, which means speed, has been profitable to American business. The new rates, effective August 1st, should popularize this rapidly expanding method of modern transportation.

The regulations on air mail are simple. Any mailable matter (except perishable matter liable to damage by freezing) may be sent by air mail. Registered, insured and C. O. D. matter is carried by air mail, as are packages not exceeding fifty pounds in weight and not exceeding 84 inches in length and girth combined. Special delivery stamps still further expedite delivery of domestic air mail.

Air mail may be deposited in any mail box. Distinctive air mail envelopes are desirable but not compulsory, but the words "Air Mail" or "Via Air Mail" must be clearly endorsed on the envelope or wrapper.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

The first ten commandments are the hardest.

What is a Communist? One who has yearnings
For equal division of unequal earnings.

(Friend)—What are you thrashing your little son for?

(Father)—He will get his school report tomorrow, and I must go away tonight.

She leaned against me, lovely Eight-Years-Old,
Asking so earnestly, "Are fairies true?"
I looked at her all magic, fairy gold,
And answered, "Yes, my dear, since I have you."

(Servant)—The doctor is here, sir.

(Absent-minded Man)—I can't see him. Tell him I'm sick.

Little Emily had been to school for the first time. "Well, darling, what did you learn at school today?" asked her mother on the child's return.

"Nuffin'," sighed Emily hopelessly. "I've got to go back tomorrow."

The laziest woman in the world is the one who puts popcorn in her pancakes so they'll turn over by themselves.

Something Might Happen

"Why did you abandon your motor trip so abruptly?"

"Oh, my wife is so superstitious. After we had run over the thirteenth man she said we ought to turn back, otherwise she felt sure we should meet with some accident."

They've found the gland that limits growth. Now all that remains is to find where the gland is located in lawn grass.

Good Old Summer Time

There's a bug in my butter,
There's a fly in my roast,
There's a gnat all a-flutter
From salad to toast;
There's a bee, very brazen,
Invading my bun
(He looks like a raisin,
The son-of-a-gun!)

(Customer)—Hey, waiter! There's a fly in my soup.

(Waiter)—Oh no, sir. That's one of them there vitamin bees you read about.

(Mother)—Son, do I smell tobacco on your breath?

(Son)—Yes, mother.

(Mother)—Then you will have to stop going out with those girls.

(Wigg)—Sorry to keep you waiting, old man; but I've just been setting a trap for my wife.

(Wagg)—Heavens! What do you suspect?

(Wigg)—A mouse in the pantry.

The New Calendar

Twenty-eight days hath September,
April, June and November;
All the rest have 28, 'tis true,
Except February, which has 28, too.

(Will)—I say, Bill, didja ever know why George Washington threw that silver dollar across the Potomac River?

(Bill)—No; how come?

(Will)—He was learning a Scotchman how to swim.

We Knew Him When—

When I am rich I'll buy the zoo,
And all the beasts—the bear, the gnu,
The ostrich, and the kangaroo,
The elephant, the cockatoo,
The lion and the chimpanzee—
And when they all belong to me
I'll take a great enormous key,
Unlock the gates and set them free!

My friend, have you heard of the town of Yawn,
On the banks of the River Slow,
Where blooms the Waitawhile flower fair,
Where the Sometimeorother scents the air,
And the soft Goeasys grow?

It lies in the valley of Whatstheuse,
In the province of Letherslide;
That tired feeling is native there,
It's the home of the listless Idontcare,
Where the Putitoffs abide.

The Putitoffs smile when asked to insure,
And say they will do it tomorrow,
And so they delay from day unto day,
'Till death cycles up and takes them away,
And their families beg, steal, or borrow!

FUTURE EVENTS

THE AMERICAN SOCIETY OF ORAL SURGEONS AND EXODONTISTS will hold its Tenth Annual Meeting at Minneapolis, Minn., August 17-18, 1928.

The preliminary program lists the following essayists:

President's Address.....Earle H. Thomas, Chicago, Ill.

The History and Development of the American Society of Oral Surgeons and Exodontists.....Harry Bear, Richmond, Va.

Radiographic Diagnosis of Tumors of the Jaws,
Carl W. Waldron, Minneapolis, Minn.
Discussion to be opened by Henry B. Clark, St. Paul, Minn.

The Relation of the Exodontist to General Dentistry..John W. Cooke, Boston, Mass.

Preoperative Treatment and Medication in Connection with the Extraction of Teeth.....Sterling V. Mead, Washington, D. C.
Discussion to be opened by W. J. McLaughlin, Bridgeport, Conn.

Public Health and Dentistry,
George H. Bigelow, M.D., Boston, Mass., Commissioner of Public Health of State of Massachusetts.

The Maxillary Sinus.....R. Boyd Bogle, Nashville, Tenn.

Some Factors That Contribute to Safe and Effective Nitrous Oxid-Oxygen Anesthesia in Oral Surgery.....J. A. Heidbrink, Minneapolis, Minn.

An Intimate Discussion of the Conduct and Economics of Practice,
Bissell B. Palmer Jr., New York, N. Y.

Included among the clinicians are the following: James A. Blue, Birmingham, Ala.; Henry B. Clark, St. Paul, Minn.; Boyd S. Gardner, Rochester, Minn.; R. A. Fenton, Iowa City, Iowa; J. A. Hanson, Faribault, Minn.; Frank Kaiser, Los Angeles, Cal.; S. V. Mead, Washington, D. C.; H. C. Miller, Chicago, Ill.; R. R. Ralston, Omaha, Neb.; A. B. Vastine, Danville, Pa.; C. W. Waldron, Minneapolis, Minn.; A. W. Ward, San Francisco, Cal.

THE AMERICAN DENTAL LABORATORIES ASSOCIATION will hold its Seventh Annual Meeting at the Andrews Hotel, Minneapolis, Minn., August 20-21, 1928.

The program of the meeting is as follows:

MONDAY, AUGUST 20, 1928

9:00 A. M. President's Address.....Harry G. Rockey, Detroit, Mich.
9:30 A. M. *Welcome to Minneapolis*.....Henry P. Boos, Minneapolis, Minn.
10:00 A. M. *Channel Teeth*.....Victor Sears, D.D.S., New York, N. Y.
11:00 A. M. *Relations between Employer and Employee,*
Eugene L. Mueller, Kansas City, Mo.

Discussions by
Sam'l G. Supplee, New York, N. Y.
Chas. W. Bartells, New Orleans, La.

1:00 P. M. *Diagnosis on Casts of Practical Cases for Reconstruction,*
C. K. Bird, D.D.S., St. Paul, Minn.

2:30 P. M. *Indications and Contra-indication for Tooth-borne and Tissue-borne Partial Dentures*.....I. J. Dresch, Toledo, Ohio

Discussions by
Geo. Roth, Hartford, Conn.
Henry W. Kiess, St. Louis, Mo.

TUESDAY, AUGUST 21, 1928

9:00 A. M. *Some Phases of the Administrative Side of the Dental Laboratory,*
I. F. Miller, Pittsburgh, Pa.

Discussions by
W. H. Schroll, Chicago, Ill.
F. A. Frantz, St. Paul, Minn.

10:00 A. M. *Assembled Unit Castings vs. One Piece Castings. Wrought vs. Cast Clasps and Their Proper Place in Partial Denture Construction,*
Sam'l G. Supplee, New York, N. Y.

Discussions by
Geo. Sternberg, New York, N. Y.
Henry Kiess, St. Louis, Mo.
I. J. Dresch, Toledo, Ohio
J. M. Ehrhardt, Chicago, Ill.

11:00 A. M. *Porcelain Work*.....Mary A. Mills, Detroit, Mich.

1:00 P. M. *Physical Properties, Reasonable Expectations and Limitations of Artificial Resins as Used in Denture Construction,*
Alfred A. Nelson, D.D.S., Detroit, Mich.

2:00 P. M. *Reports on Causes of Posterior Teeth Striking Hard After Dentures Are Vulcanized*.....B. I. Martinez, Omaha, Neb.

3:00 P. M. *An Appeal from the Far East,*
By a delegate to the A. D. L. A. Convention.

3:30 P. M. Business Meeting and Election of Officers.

THE SUPREME COUNCIL, ALPHA OMEGA FRATERNITY, will meet at the Nicollet Hotel, Minneapolis, Minn., on Monday, August 20, 1928. The first session will be held at 9:30 A. M. and will be followed by an afternoon session immediately after luncheon. Matters of importance will come up for action at both sessions. It is hoped that all fraters will attend.

The banquet will be held at 6:00 P. M. at the Nicollet Hotel. To avoid delay in registration, kindly present membership card. The local chairman is Irwin Epstein, 403 Pittsburgh Bldg., St. Paul, Minn.

By order of the Supreme Chancellor.

A. M. FLASCHNER, *Supreme Scribe,*
419 Boylston Street,
Boston Mass.

A. H. MENDELSOHN,
Medical Arts Bldg.,
Baltimore, Md.

The annual meeting of the AMERICAN DENTAL LABORATORIES ASSOCIATION will be held at the Andrews Hotel, Minneapolis, Minn., on Monday and Tuesday, August 20-21, 1928.

THE FEDERATION OF AMERICAN WOMEN DENTISTS will hold its annual meeting in Minneapolis, Minnesota, on Monday, August 20, 1928, at 2 P. M. General headquarters will be at Hotel Plaza.

HAIDEE WEEKS, *Chairman Publicity Committee,*
1207 Maison Blanche Bldg., New Orleans, La.

THE AMERICAN DENTAL ASSOCIATION will hold its Seventieth Annual Session in Minneapolis, Minnesota, August 20-24, 1928.

THE AMERICAN DENTAL ASSISTANTS ASSOCIATION will hold its fourth annual meeting in Minneapolis, Minn., August 21-23, 1928. General headquarters will be at the Leamington Hotel.

JULIETTE A. SOUTHARD, *President,*
174 West 96th St., New York, N. Y.
RUTH F. ROGERS, *Secretary,*
Suite 1760, 16 North Wabash Ave., Chicago, Ill.

THE NORTHERN ILLINOIS DENTAL SOCIETY will hold its forty-first Annual Meeting at Joliet, Ill., October 10-11, 1928.

P. G. UNDERWOOD, *Secretary,*
Elgin, Illinois.

THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its fourth annual December Meeting for Better Dentistry, at the Hotel Pennsylvania, New York, December 3-6, 1928.

There will be an extra day of clinics and lectures this year. The list of essayists and clinicians is about ready and will be announced at an early date.

The same plan of subscription will be continued this year as heretofore, admitting a member to all lectures, clinics, etc.

A subscription blank and list of clinics will be ready for circularization by November 1st.

There will be a manufacturers' exhibit in the hotel during the meeting.

JOHN T. HANKS, *Chairman,*
17 Park Avenue, New York, N. Y.

THE CHICAGO DENTAL SOCIETY will hold its sixty-fifth annual meeting and clinic January 14-16, 1929.

The Chicago Dental Society wishes to announce its 1929 Annual Meeting and Clinic at the STEVENS HOTEL. Please take notice of change from the Drake Hotel to the Stevens Hotel with its three thousand rooms and with ideal conditions for staging the yearly classic.

All members of the American Dental Association are cordially invited to attend. Preliminary programs will be mailed to all members of the A. D. A. sometime in December of this year. The program will be divided into eight sections, as follows:

Section I—Operative Dentistry.
Chairman: O. J. Olafsson, 55 East Washington Street.
Secretary: E. J. Krejci, 7060 Clyde Avenue.

Section II—Full Dentures.
Chairman: R. O. Schlosser, Northwestern University.
Secretary: E. C. Pendleton, Chicago College.

Section III—Partial Dentures; Crown and Bridge.
Chairman: Stanley D. Tylman, 185 North Wabash Avenue.
Secretary: W. H. Kubacki, 2949 Milwaukee Avenue.

Section IV—Mouth Hygiene, Children's Dentistry.
Chairman: E. E. Graham, 58 East Washington Street.
Secretary: E. W. Swanson, 25 East Washington Street.

Section V—Orthodontia.
Chairman: B. O. Sippy, 30 North Michigan Avenue.
Secretary: C. R. Baker, 708 Church Street, Evanston.

Section VI—Oral Pathology.
Chairman: E. H. Hatton, Northwestern University.
Secretary: J. R. Blayney, University of Illinois.

Section VII—Oral Surgery.
Chairman: J. E. Schaefer, 55 East Washington Street.
Secretary: Eli Olech, 4259 West Madison Street.

Section VIII—Radiology.
Chairman: E. H. Thomas, 30 North Michigan Boulevard.
Secretary: M. A. Root, 636 Church Street, Evanston.

The Program Committee is under the direction of Frederick B. Noyes, assisted by Stanley D. Tylman, Vice-Chairman; I. G. Jirka, Charles R. Baker and Howard Alexander.

Louis E. Jelinek, *President,*
Hugo G. Fisher, *Secretary,*
185 North Wabash Avenue, Chicago, Ill.

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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., EDITOR

ALLAN M. JOHNSON, A.B., D.M.D., ASSOCIATE EDITOR

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OUR COVER THIS MONTH

Our COVER PICTURE presents a pleasant and familiar country scene, in which a wayside inn and a glorious tree are the outstanding features. It must be said in passing that **this tree** is no ordinary landscape object, as it is associated with one of the most notable incidents of our nation's history. The location is Hopkinton, N. H., and under this particular tree a grand reception was held in the summer of 1825 for the celebrated Lafayette, who was here to aid America in establishing its independence.

There is nothing that strengthens a nation like reading of the nation's own history, whether recorded in books, or embodied in customs, institutions and monuments. Much time has passed, much history has been made since Lafayette's visit, but we have never forgotten his help in our time of need, a fact that was plainly demonstrated when we entered French territory during the recent world war. A tree is the heir of the ages, and this particular one is a veritable landmark or monument, which helps us to appreciate the old saying that "To live in the hearts we leave behind is not to die."

—This picture by Purchase, Jamaica, N. Y.

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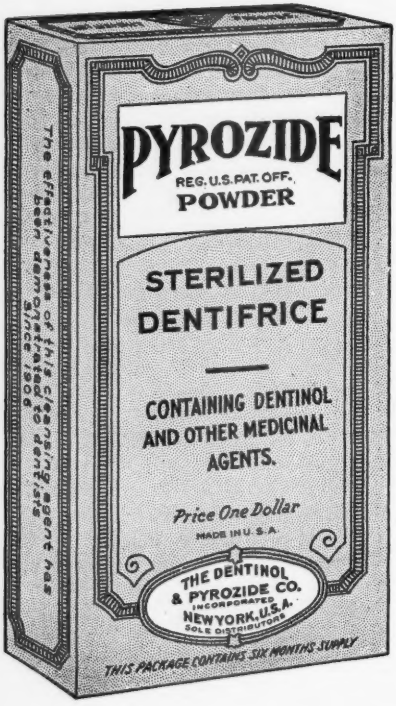

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